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RACE AND POPULATION PROBLEMS

BY

HANNIBAL GERALD DUNCAN, PH.D., TH.D.

ASSOCIATE PROFESSOR OF SOCIOLOGY IN THE
UNIVERSITY OF NORTH CAROLINA

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RACE AND POPULATION PROBLEMS

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INTRODUCTION

Such populous nations as India, China, Japan, and certain European countries have long engaged the interest of lay thinkers, and excited alarmists who fear the downfall of "Nordic superiority" through the inevitable diffusion of "hordes of olive-skinned Asiatics" and other "undesirables." During and following the World War an ever-increasing number of primary and secondary contacts were made, and as a result, nations, more than ever before, have become so inseparably linked that what affects one ultimately affects others. Not only international but also national complications have arisen. Since the World War such organizations as the Ku Klux Klan and the restriction of immigration are indicative of some of the problems within our own borders. Consequently problems of population resulting from racial diffusion have increased as a greater breadth of culture contacts have been made, and as certain opinions concerning these have become more and more biased.

On the other hand, scientists and careful students have sensed pertinent problems inherent in the population situation, and are seriously studying the various forces that are serving as controls upon the quantity and quality aspects of population. Among these might be mentioned the unparalleled increase in numbers, the rapid depletion of our mineral resources, the pushing of our food supply towards its optimum limit, the decline in the birth rate of the "upper" classes, the gravitation towards the cities, the effects of a curtailed immigration and the mixture of races. These and kindred phases of population have been dealt with from many angles and with varying amounts of prejudice and scientific exacti-

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tude. While recognizing the excellence of works already in the field, the author does not consider any one of these sufficiently adequate for a well-balanced text.

This book, which is designed as a general introduction to population problems, is an outgrowth of the author's fifteen years of study of racial problems and his seven years' experience in teaching courses in population in universities. In it he has endeavored to combine the old type of textbook with the more recent type of a book of readings, and has striven to refrain from injecting his own conclusions. Such a method as here employed acquaints the student with the viewpoints, many of which conflict, entertained by numerous scholars, without subjecting him to any single view held by an individual author. While it is impossible as well as highly impracticable to include all that has been written on the topics selected, the author has attempted, in the some 650 quotations and citations used, to present the major as well as some of the minor contributions to the field of population. The historical point of view, from which the text is written, enables the student to grasp something of the complexity in the development of population problems. If this book in any way helps to fulfill the need for a suitable text, created through an increasing interest in population and the rapid inclusion of population courses in colleges and universities, the author feels that his efforts have been rewarded.

The text is divided into two books. The first, which treats of the problem of races, consists of three parts. Part I deals with the rise and spread of the human group and discusses the difficult questions of man's origin, the formation and classification of races. Part II—biology and racial problems—discusses heredity and eugenics, inferiority and superiority of races, and amalgamation. In Part III the much neglected concept of culture is introduced and discussed from both the organized and unorganized methods of diffusion. Book Two, which is devoted to the problem of numbers, is divided into

two parts. Part IV does not discuss Malthus alone, but includes both pre- and post-Malthusian theorists. In Part V —population and its control—such problems as the increase in the population of the world, fecundity and fertility, positive and preventive controls of preliterate peoples, the modern birth control movement, and the ultimate limit of population —the food supply—are treated.

I wish to take this opportunity to express my gratitude and appreciation to those who have helped to make this book possible. Their kindness, however, does not render them responsible for whatever shortcomings the book may have. To the different authors upon whose works I have drawn; to the various publishing houses, which have so kindly granted me permission to quote from their publications; to Professor Ernest R. Groves, Editor of the Series, for including this volume in his selection, and for many valuable suggestions; to Professor W. C. Smith, Ph.D., F.R.A.I., University of Hawaii, for reading the manuscript in its early stages and for his wise counsel; to Professor Frank H. Hankins, Ph.D., Smith College, for helpful suggestions regarding the outline; and to my wife, Winnie Leach Duncan, A.M., who could be rightly considered co-author of this work, I am deeply indebted.

H. G. Duncan

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BOOK I

THE PROBLEM OF RACES

RACE AND POPULATION PROBLEMS

PART I

THE RISE AND SPREAD OF THE HUMAN GROUP

CHAPTER I

THE ORIGIN OF MAN

The mythologies of preliterate peoples reveal that man has long been interested in seeking to unfathom the origin of the earth, the beginning of life, and the mysteries surrounding his own creation. In general, interests in these problems have not lagged with the development of man, but have been greatly accelerated since the time of Darwin. Although much yet remains to be discovered, we now have some rather definite ideas regarding these origins. The geologists offer us theories of the origin of the earth, anthropologists of the beginning of man, and biologists of the origin of life. "All biologists," writes Professor G. N. Calkins, "are practically agreed that living matter originated on the earth's surface from salts and other inorganic matter at a time when conditions of temperature, atmosphere, and other physical characteristics of the globe were very different from the conditions today."[1]

Theories of the origin of man.—The mythologies of every important preliterate people contain stories of the origin of

[1] "Biology," Second Edition, Revised and Enlarged, Holt, 1914, pp. 67–68.

man, but many make no mention of the fact that the earth did not exist and had to be created. "Its existence," writes Morris Jastrow, "indeed appears to be assumed, only that it is submerged through the waters which everywhere abound."[2] Some tribes, however, apparently puzzled over the creation of the earth and constructed myths to explain its origin. The Maidu Indians believe that a turtle was sent down into the water from a boat. After six years he returned with a little dirt under his nails; from this dirt the earth was made.[3] The Melanesians maintain that Atua produced the island of Tikopia from the depths of the sea by letting down a line and drawing up two stones which gave it birth. Other land was produced from this.[4] "The Menik Kaien and Kintak Bong," says I. H. N. Evans, "believe that the earth was brought up from below by Taheum (the dung-beetle) in the form of a kind of powder. This Kawap, the Bear, stamped down with his paws, for, if he had not done so, the earth would have gone on rising till it almost reached the sky."[5]

Practically all of the mythologies of preliterate peoples account for man by some superhuman or unnatural process. In Australian mythology, the All-Father created everything except man, who had existed from the beginning as a half-finished creature. Some stories make the first man dwell in a subterranean cavern from which he was able to reach the top of the world only by climbing up the roots of a giant tree. Others have a superhuman artifice to mold man out of dirt, and others cause him to change from an animal by a process of metamorphosis. Practically all of these miraculous occurrences happened in a comparatively short period. Some, how-

[2] "Hebrew and Babylonian Views of Creation," Univ. of Penn., *Public Lectures*, 1913–14, p. 209.

[3] Compare Dixon, R. B., "Maidu Myths," *Bul. Amer. Mus. of Nat. Hist.*, Vol. 17, pp. 39–45.

[4] Compare Rivers, W. H. R., "History of Melanesian Society," Cambridge, 1914, Vol. I, p. 315.

[5] "Studies in Religion, Folk-Lore, and Custom in British North Borneo and the Malay Peninsula," Cambridge University Press, 1923, p. 154.

ever, would permit of an evolutionary interpretation. Although people's interest in this important subject has not waned, to use Bryce's words, the "mists that hang around man's origin and man's destiny are, so far as scientific knowledge goes, just as deep as ever." For practical purposes, we may say there are three chief theories in regard to the origin of man.

1. *Special creation theory.* The Maori of New Zealand believe the first man was begotten by a union of heaven and earth. The Lengua Indians of Paraguay believe that a beetle created man out of earth which it dug up from its subterranean abode. According to the Dusun of British North Borneo, when the world was created there was no earth, but a large rock was in the center. This rock opened and out of it came man and woman. Some of the Dusuns believe that the *Tempak longum,* a small white and black bird, is the ancestor of the Chinese because its song is thought to resemble the language of the Chinese. The preliterate Dieri have a better story of creation than that of the illustrious Dante. They believe Mura-Mura made some little black lizards and being pleased, decided to convert them into men. But unlike Dante who split their tails and formed legs, he cut off the tails and had no more trouble.[6] In Greek mythology Prometheus created man by making a clay image and then infusing into it a spark of fire which he had brought from heaven.[7] Some of the mythologies of the Hebrews, Babylonians, Egyptians, Greeks, New Zealanders, and Australians, have man molded out of clay and woman created from a rib or a thigh bone. The two different stories in the first and second chapters of Genesis give us the Hebrew idea of creation.[8]

[6] Compare Sollas, W. J., "Ancient Hunters," Third Edition, Macmillan (London), 1924, p. 324.

[7] Compare Fisk, John, "Myths and Mythmakers," Houghton, 1881, pp. 64–65.

[8] Compare Frazer, Sir J. G., "Folk-Lore in the Old Testament," Macmillan, 1923, pp. 1–3.

Many people interpret the Biblical account to teach that man was created suddenly, in physical, mental, and spiritual perfection in the Garden of Eden. They believe in the fixity of the species and that two of every living thing entered with Noah into the Ark. Scientists, however, object to this theory, claiming that it does not explain the origin and survival of the two hundred or more rudimentary organs that man carries around with him, and that it does not account for the differences between races.

2. *Pseudo-evolutionary theory.* There are a number of people who believe in evolution, but do not admit that man evolved from lower animals. They hold that evolution is true to the extent that animals evolve and races evolve, but believe there is no real connecting link between animals and man. De Quatrefages and his followers practically deny that the gap between man and animals has ever been bridged by progressive evolution. Man's origin, some think, was due to a special creation. Man, they contend, evolved through a series of long successive periods of evolutionary steps and finally reached a place where God "breathed into his nostrils the breath of life and man became a living soul." A few argue that Darwin held this view because he closed "The Origin of Species" with these words: "There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being evolved."

3. *The evolutionary theory.* Scientists believe that man evolved from some animal or animals. Mortillet and his followers claim a tertiary anthropoid as the precursor of man, but this theory is objected to by some writers on the ground that it makes the tertiary precursor near enough man to make and use implements superior to those of the Tasmanians, who

all agree were true human beings. The Tasmanians were a much younger group than Crô-Magnon and it is generally accepted that Crô-Magnon belonged to the human species. A few anthropologists think perhaps part of the fossil types succeeding Pithecanthropus, such as the Heidelberg, Piltdown, and Neanderthal, were collateral instead of direct ancestors of man.

For convenience, we may say that those holding the evolutionary theory can be placed into two groups: (1) One holds the view that man evolved directly from some animal or animals and is closely akin to present-day anthropoids. After making a study of the idiots and imbeciles in hospitals in London and elsewhere, Dr. F. G. Crookshank came to the conclusion that there are three principal races and that each has evolved from a species of the ape. The Negro race, he holds, evolved from the gorilla or African ape, the Mongolian race from the orang-utan or Asiatic ape, and the Caucasian race from the chimpanzee.

"The view," writes A. C. Haddon, "has frequently been propounded that man may have arisen independently in more than one continent, but this raises grave difficulties. At present it seems wiser to assume that man arose from a small group of anthropoids who had a relatively limited distribution. That there were many local races of primeval palaeanthropic and neanthropic men, differing slightly from each other, but each having minor characters in common, is rendered the more probable as we find that Lord Rothschild has distinguished five races of gorilla; more than a dozen races of chimpanzee have been described, and Selenka notes seven races of orang-utan, in all cases each being confined to a definite geographical area."[9]

"Any one," writes Professor G. E. Smith, "who is familiar with the anatomy of Man and the Apes must admit that no

[9] Haddon, A. C., "The Races of Man," copyright 1925 by the Macmillan Company, pp. 152–53. Reprinted by permission.

hypothesis other than that of close kinship affords a reasonable or credible explanation of the extraordinarily exact identity of structure that obtains in most parts of the bodies of Man and Gorilla. To deny the validity of this evidence of near kinship is tantamount to a confession of utter uselessness of the facts of comparative anatomy as indications of genetic relationships, and a reversion to the obscurantism of the Dark Ages of biology. But if any one still harbours an honest doubt in the face of this overwhelming testimony from mere structure, the reactions of the blood will confirm the teaching of anatomy; and the susceptibility of the Anthropoid Apes to the infection of human diseases, from which other Apes and mammals in general are immune, should complete and clinch the proof for all who are willing to be convinced." [10]

(2) The other group believes that man evolved from some animal or animals, but that he did not descend directly from any of the living anthropoid apes. Professor A. H. Keane contends that no sane biologist holds that man "descended" from the chimpanzee, gorilla, or other simidae. He says "man cannot possibly ascend directly from any of the living anthropoid apes. He has some physical features in common with each, some different from each, some, and these not the least important, entirely peculiar to himself." Keane thinks that on the physical side man "stands somewhat apart from, but yet so near to, all, that his origin can be explained only by a process of natural evolution from a common precursor, or else by direct creation; there is absolutely no other alternative." [11]

"Though similar to the animal in many ways," writes Goldenweiser, "man differs markedly from even the highest animals, including his closest known relatives, the anthropoid

[10] "Essays on the Evolution of Man," Oxford University Press, 1924, pp. 23–24.

[11] "Ethnology," Cambridge University Press, 1909, p. 28.

apes." Goldenweiser mentions erect gait, position of the head, size of the brain, shape of the cranium, development of the hand, articulate language, the gift of abstract thought, and the use of tools as "some of the traits that set off man as an unique achievement of biological evolution, as a super-animal, immeasurably removed from all his precursors." [12]

Regardless of what theory of evolution we hold we have to face the fact that man differs from animals; and we may urge that "it is very early to abandon the strictly scientific problem of man's evolution"; yet unexplained differences do exist. We know that if we feed queen bee food to bee larva we get a queen bee whether we are in America or Japan. We know a chimpanzee will be a chimpanzee and act like all other chimpanzees if it be in Africa, America, Asia, or Europe; or whether it be cared for by the refined or coarse, wealthy or poor. With human beings it is different. If a child grows up among the Africans it will have African culture; if among the Americans, it will have American culture; and, if among the Asiatics it will have Asiatic culture. Although the Girl of Songi [13] was lost only until nine years of age, she carried a club with which she killed a dog that attacked her. She later learned something of the French language and of domestic science. No one ever heard of an animal doing these things. There seems to be an impassable gulf between animals, such as we know, and man.

The birthplace of man.—Many primitive tribes had their "Garden of Eden" where man was "created," as did the Hebrews of old. Each tribe seems to have considered itself the one "created" and consequently the only "pure" one. Other tribes were generally considered degenerate offspring. Even now many Caucasians believe that the white race is the

[12] Reprinted from "Early Civilization," by A. A. Goldenweiser, by and with permission of, and special arrangement with Alfred A. Knopf, Inc., authorized publishers, 1922, p. 3.

[13] Compare Park, R. E. and Burgess, E. W., "Introduction to the Science of Sociology," University of Chicago Press, 1924, p. 243.

only "pure" one and that the Negroes are the result of the "curse" placed upon Ham.

Anthropologists are not in complete accord in regard to the original home of man. Four principal views as to the place of man's origin have been proposed:

1. *Africa.* Certain anthropologists have proposed that Africa is the original home of man. Some believed the Negro represents a stage between animals and the Caucasian group. A few thought the Negro little less than an animal and pointed to his hair, jaws, lips, and nose as proof of their contentions. But a group of later anthropologists assert that the Negro is nearly a perfect race physically; that he is not in any particular the best representative of primitive man; that other races are not derived from the Negro; and that his lips remove him as far from the animals as his gnathism moves him toward them. "Arguments," writes Professor Lull, "such as those recently offered by Churchward striving to prove the ancestral character of the African Bushmen and the fact that Africa may be the primal home of mankind are not yet established theses."[14] In his book, "Climate and Evolution," W. D. Matthew advances the idea that the early acceptance of the tropics as the original home of man, was due to the supposed relationship between the loss of hair and the wearing of clothes. The early writers thought that the loss of hair on the body was due to a specialization in a tropical environment, and the wearing of clothes resulted from migrations to cold climates. Matthew thinks that it is more reasonable to suppose that the loss of hair was the result of wearing clothes.

2. *Asia.* A large number of authorities now make Asia the original home of mankind. "Personally," says Haddon, "I am inclined to the opinion that the actual evolution of man took place in Western Asia, possibly rather southerly than northerly, in which case the group, or groups, which remained

[14] Baitsell, G. A. (Editor), "The Evolution of Man," Yale University Press, 1922, p. 12.

to the south retained on the whole more primitive characters than the group or groups which migrated northerly." [15]

Buxton thinks that at present we know very little about the origin of the Negritoes and consequently we cannot say they are of African or Asiatic origin. He is inclined to the view of Asiatic origin, but states: "We cannot speak, for lack of evidence, of ultimate origins. It seems probable that the Yellow races, and at least one branch of the White race (the Nordic), have had their center of dispersion in Asia, but in what locality it is impossible at present to specify." [16]

De Morgan claims that in historical times all the invasions of the west have come from Asia. He thinks that while we cannot be sure what changes have taken place, many of the hypotheses in regard to the cradle of the racial groups are purely gratuitous. Almost every kind of supposition has been made, but too many elements enter into man's distribution. "Prehistory," he says, "is still surrounded by too many mysteries to entitle us to approach scientifically the great problems connected with the place of origin of our species." [17]

Lull says that "Europe is not supposed to have been the original evolutionary center of mankind," but contends that Asia is. He argues for Asia because she "possesses great size, and hence varying life conditions, together with a central location contiguous to all other land masses, even, as the north polar projection shows, to North America. From Asia, as from no other of the continents of the world, is communication so easy and the migratory routes so clearly discernible. Asia is the home of the highest and best of the higher organic life and is with few exceptions the place whence man has derived his dependents and allies, the domestic animals and plants. Asia is the seat of the oldest civilizations, many

[15] Haddon, A. C., "The Races of Man," copyright 1925 by The Macmillan Company, p. 153. Reprinted by permission.
[16] Buxton, L. H. D., "The Peoples of Asia," Knopf, 1925, p. 83.
[17] De Morgan, Jacques, "Prehistoric Man, a General Outline of Prehistory," Knopf, 1925, pp. 21–22.

indications of which, though visible as sand-drifted ruins, have outlived the vaguest traditions concerning their origins. Finally, the physical and climatic conditions of Asia in the Tertiary era were such as the scientist must postulate in his imaginings of the *modus operandi* of human origin from his prehuman forbears, i.e., such as would enforce descent from the trees and terrestrial adaptation. The fact that the most primitive peoples today—African pygmies and Australian blackfellows—are not Asiatic does not tend to controvert but rather to strengthen this belief, for as the first formed ripples of the widening circle caused by a stone dropped into a pool are the outermost, so the descendants of the earliest migrants should today be found farthest from the center of origin. The fact that the most ancient human remains in point of time thus far discovered are Javanese and therefore nearer the focal point is yet another bit of evidence." [18]

Ellsworth Huntington, also upholding the above view, maintains that it is now "generally agreed that early man originated somewhere in Asia. Formerly it was supposed that he came from the warm, tropical parts of the continent. Little by little this view has given place to the idea that man's early home was in what are now the central deserts and plateaus, the vast region between Mesopotamia and the Caspian Sea on the west, and eastern Tibet and Mongolia on the east. There is abundant evidence in archæology and history that the greatest of all human movements have been from the central parts of Asia outward. One great stream of migrants presumably went by devious routes southwest into Africa; others went west to Europe; India has almost always been entered from the northwest, though some minor streams came from the northeast. Australia appears to have been peopled by primitive men who went down the Malay peninsula and across the islands. China has again and again been overwhelmed

[18] Baitsell, G. A. (Editor), "The Evolution of Man," Yale University Press, 1922, pp. 5–7.

by people invading from the north and northwest, while the original inhabitants of North America are now almost universally agreed to have come in one or more streams from Asia by way of Alaska, and thence to have penetrated to South America. Moreover, man's chief domestic plants and animals came from this same general region and its borders. The horse is a noteworthy example. What is true of him appears to be equally true of the sheep, camel, ox, yak, dog, goat, hen, duck, and other animals. It is likewise true of wheat, rice, barley, and many other highly valuable plants. Although America has supplied a few things like corn, potatoes, and tobacco, and Europe may be the original source of some others such as oats and rye, the contributions of all the other continents to man's domestic plants and animals are only a fraction of those which presumably came from the central parts of Asia. Thus the evidence that man originated somewhere in what is now the plateau region extending from Mesopotamia and Persia to west China is strong." [19]

3. *Submerged continent.* That man originated on a now submerged continent is a theory postulated by A. H. Keane. The basis for his contention is as follows: That "few missing links of much more simian aspect than those of Java or Neanderthal will probably ever be brought to light, the pliocene precursor having apparently originated in a now submerged area where the transitorial forms can no longer be recovered. This area must obviously be sought in those regions of the Indo-African and Austral Continents, which survived into tertiary times, and which were the common home of the anthropoids and of the lemurs with both of which sub-orders the Hominidæ show affinities." [20]

"It is admitted by all ethnologists," continues Keane, "that Asia is the original home of the Mongolic division, a fact which harmonises well with the view that the vanished Indo-

[19] "The Character of Races," Scribner, 1924, pp. 20–21.
[20] "Ethnology," Cambridge University Press, 1909, p. 236.

African Continent was the cradle of mankind. From that region the pliocene precursor had easy access through India itself to the Central Asian plains and plateaux. At present the peninsula appears cut off on all sides by lofty ranges from the mainland, although recent military surveys have revealed a considerable number of relatively easy passes, giving access through Soleimán Mountains to the Iranian tableland. But in the pliocene epoch all these ranges stood at a much lower level than they now do. Both the Arakan-Yoma, now blocking the way to Indo-China, and the Siválik foothills, date only from the latter part of the tertiary era, when the Western Himaláyas themselves were probably not more than 20,000 feet high, or nearly 10,000 less than at present. Even the Tibetan plateau, now the highest on the globe, had a marine bed in the cretaceous age, since when it has been slowly raised to its present level." [21]

4. *Monogenism versus polygenism.* For a long time anthropologists have been divided into two groups: [22] the monogenists claim that man originated in only one locality from which he migrated into other regions and adapted himself; while the polygenists contend that man originated in two or more places. As formerly indicated, Crookshank maintains that the Negro evolved from the gorilla in Africa, the Mongolian from the orang-utan in Asia, and the Caucasian from the chimpanzee. Although Brinton and Sergi think Europe was peopled from central Africa, Quartefages, Woodruff, and Giddings would assign a Baltic or Siberian origin for the white race. Dixon proposes a tropical origin for the Proto-Australoid and Proto-Negroid groups, the precursors of the Negro race, and an Asiatic origin for the others. He says "the whole trend of recent anthropological investigation, together with the archæological discoveries of the last decade,

[21] "Ethnology," Cambridge University Press, 1909, pp. 295–96.

[22] In his "An Introduction to Anthropology," p. 40, Professor W. D. Wallis asserts that all contemporary anthropologists except R. B. Dixon accept the monogenetic theory.

can have, it seems to me, no other outcome than the abandonment of the monogenist position and the frank acceptance of polygenism.'' [23]

The four views just presented represent attempts that have been and are being made to establish the geographic origin of the human race. There is now little acceptance of the belief that primal man originated in Africa. The most commonly accepted inference is that Asia is the cradle of the human race. When one considers that in southern Asia there are two great reservoirs of life—India and China; that all migrations seem to commence here; that many of our domestic plants and animals originated in this region; that some of the earliest elements of civilization apparently had their inception here; that some of the earliest human remains were discovered in this area, he finds evidence pointing in this direction. There is now, however, a trend away from the monogenic toward the polygenic theory; and as a result it may be possible that Keane's submerged continent may become more generally accepted as the place where man assumed his human characteristics. From there it may be possible that primal man emerged and later took on racial characteristics in Asia, Africa, and around the Baltic, and thereby gave rise to the three generally accepted races of today.

The age of primitive man.—Until about the middle of the nineteenth century it was generally assumed that the beginning of man's existence was coincident with recorded history. Dr. J. L. Lightfoot, vice-chancellor of Cambridge University, and profound Biblical scholar, declared: ''Heaven and earth, centre and circumference were made in the same instance of time, and clouds full of water, and man was created by the Trinity on the 26th of October 4004 B.C. at 9 o'clock in the morning.'' [24]

[23] ''The Racial History of Man,'' Scribner, 1923, p. 503.
[24] Quoted by Lull, R. S., ''The Antiquity of Man,'' in Baitsell, G. A. (Editor), ''The Evolution of Man,'' Yale University Press, 1922, p. 1.

While we do not know the complete history of man, some fossils, which seem to foreshadow the present race, have been discovered. Part of these belong to the Magdalenian and Aurignacian or Upper Palæolithic Cultures in Post-glacial times, and are perhaps between 500,000 and 1,000,000 years old. Others apparently belong to a much earlier date. Geology and anthropology reveal to us many changes that took place in the world and show us that in Africa, America, Asia, and Europe "Man was alive and busy untold thousands of years ago." Geology tells us of four glaciations with three warmer periods in the northern hemisphere. These ice sheets did not extend all over the territory and man was evidently alive during this time and very active during the warm interglacial periods. The Pleistocene Age is supposed to have begun between 500,000 and 1,500,000 years ago. It is in this period that we find the earliest evidence of man. The table on the opposite page may be useful.

1. *Pithecanthropus.* In 1891, Dubois, a Dutch surgeon, found the top of a skull, a thigh bone, and three teeth, scattered over about twenty yards, under stratified deposits forty-five feet thick, near Trinil in Java. From this he constructed the Pithecanthropus, or erect ape-man, which has been put forth as the "missing link." This is the oldest relic of Hominidæ. The teeth are distinctly human, the thigh bone is evidently human and indicates an erect posture, the gibbon-like skull cap indicates a sub-human brain. The Pithecanthropus is supposed to have lived in the early Pleistocene period, or first Gunz glaciation of Europe, about 1,000,000 years ago. Dr. Dubois' contentions have been severely criticized and his ideas have not been generally accepted.[25]

2. *Heidelberg man.* In 1907 a well-preserved lower jaw with teeth was found near Heidelberg, Germany, at a depth of seventy-nine feet below the surface of river valley

[25] Compare Wallis, W. D., "An Introduction to Anthropology," Harper, 1926, pp. 55–57.

	Geological Time		*Culture Stages*		*Races of Men*
			Iron		
	Holocene	Recent	Bronze		Living races (began about 10,000 years ago)
			New Stone Age	Neolithic	
Quaternary	Pleistocene		Old Stone Age	Upper Palæolithi { Azilian, Magdalenian, Solutrean, Aurignacian	Crô-Magnon, Grimaldi?, Brünn, Rhodesian (25,000 to 10,000 years ago?)
		IV. Glacial			
		3rd Interglacial		Lower Palæolithic { Mousterian, Acheulean, Chellean	Neanderthal (50,000 to 25,000 years ago) Piltdown (250,000 years ago?) Heidelberg (500,000 years ago)
		III. Glacial			
		2nd Interglacial			
		II. Glacial 1st Interglacial			
Tertiary	Pliocene	I. Glacial		Pre-Palæolithic { Foxhallian, Pre-Chellean	Pithecanthropus (1,000,000 years ago?)
	Miocene				Hominidæ diverged from anthropoid apes (1,000,000 to 2,000,000 years ago)
	Oligocene				Gibbons diverged
	Eocene				Divergence of Old World monkeys. Divergence of New World monkeys. Primates diverged from a generalized mammalian stock

sands. The jaw is ape-like, but the teeth are human. As it was found with fossils of pre-glacial mammals such as the woolly rhinoceros and mammoth, it is possible to fix its approximate date, which is thought to be about 500,000 years ago, although some place it at 25,000.

3. *Piltdown man.*[26] Half the lower jaw, several small portions of the bones of the face, and a number of teeth were discovered by Dawson and Woodward in Sussex, England, in 1911–13. These remains were found in a gravel bed about four feet thick. A second specimen was later found about two miles away. The front part of the skull and front teeth are ape-like, but the posterior part and molar teeth are undoubtedly human. As Thomson remarks: "Thus the Dawn Man of the Sussex Weald was a remarkable mixture of ape-like and man-like characters."[27] The remains were found along with crude Eoliths and long extinct mammals, such as the woolly rhinoceros and mastodon. Thus the Piltdown man probably belonged to the third glacial period, around 250,000 years ago. Some anthropologists, however, think it much older than the Heidelberg man.

4. *Neanderthal man.* Knowledge of this race is due to the discovery of many fossils in several places in western Europe. The name is derived from the Neanderthal gorge, near Düsseldorf, Germany, where the first skeleton was discovered in 1856. Since this date many remains of this group have been unearthed in Austria, Belgium, France, Germany, and Spain. This race evidently lived in the Mousterian period of Palæolithic or Old Stone Age, the last of the glaciation, about 50,000 to 25,000 years ago. This race was short, heavy, with large heads and was prognathous. The men averaged about five feet, three inches, and the women four feet, ten inches —about the size of the modern Japanese. Neanderthal man is thought to have known the use of fire and other cultural

[26] Now believed to be the remains of a woman.
[27] "What Is Man?" Second Edition, Methuen, 1924, p. 10.

traits belonging to the Mousterian period. It is thought, that, although he is not ancestral to us, he did not disappear from Europe until after *Homo Sapiens* arrived, and probably was absorbed by *Homo Sapiens,* a fact which explains Neanderthal traits still found in some Western Europeans. Discussing this group, Kroeber says:

"The artifacts found in Mousterian deposits show that Neandertal man chipped flint tools in several ways, apparently hafted some of these tools, manufactured bone implements, probably dressed in skins, knew fire, buried the dead, and seemingly possessed some rudiments of religion. Almost certainly he spoke some sort of language." [28]

5. *Crô-Magnon man.* This is the first type of man that anthropologists are sure of being connected with modern man. This race lived in postglacial times, perhaps dating from 25,000 to 30,000 years ago. The first fossils discovered of Crô-Magnon man composed seventeen skeletons, and were found near Gower, Wales, in 1864. Since that date several more skeletons have been unearthed in France, Germany, and Italy.

"The Crô-Magnon race," writes Kroeber, "is not only within the human species, but possibly among the ancestors of modern Europeans. While Neandertal man is still *Homo Neandertalensis*—the genus of living man, but a different species—the Crô-Magnon type is *Homo sapiens*—that is, a variety of ourselves. The age is that of the gradual, fluctuating retreat of the glaciers—the later Cave period of the Old Stone Age: the Upper Palæolithic, in technical language, comprising the Aurignacian, the Solutrean, and the Magdalenian. In years, this was the time from 25,000 to 10,000 B.C." [29]

In height and brain weight this race is thought to have

[28] "Three Essays on the Antiquity and Races of Man," University of California Press, 1920, pp. 17–18.
[29] "Anthropology," Harcourt, 1923, p. 27.

surpassed any race today. They had long, narrow heads, well-developed and broad faces and prominent chins. According to reports they possessed magnificent physique, and showed wonderfully artistic skill in the painting, engraving, and sculpture found in the caves of the Pyrenees and north Spain. According to Kroeber these "people used skillfully made harpoons, carried flint chipping to perfection, originated a very remarkable art, and in general attained a development of faculties parallel to their high degree of bodily progress." [30]

6. *Less important discoveries.* A few other discoveries of perhaps less importance than those discussed above have been made. The *Rhodesian Man* was discovered at Broken Hill, Bone Cave, in Northern Rhodesia, Africa, in 1921. The remains were in a cave nearly ninety feet deep, yet they were not fossilized and were accompanied by a large amount of mineralized animal bones of living species. The age of Rhodesian man is unknown; he probably represents a primitive type, more advanced than Neanderthal. Its chief importance is due to the fact that it is the first remains so far discovered in Africa, and it is the only prehistoric skull found whose teeth show caries.

The *Grimaldi* race is mentioned in several works of anthropology. Some writers think it had negroid features, and believe it migrated to Europe from northern Africa, but had to retreat before the Crô-Magnon. Others regard both the Brünn and Grimaldi races as transitory steps from the Crô-Magnon to the Neolithic races. The New Stone Age began about 10,000 or 8000 B.C. This age is often spoken of as the Neolithic period and the people as being Neolithic. It is interesting that in this period, broad-headed people are encountered for the first time in Europe.

In conclusion, we may say the coming of man has been a long and slow process. This is especially true if man came

[30] "Three Essays on the Antiquity and Races of Man," University of California Press, 1920, p. 20.

up from the lowest forms of life. "The weight of evidence," writes Tyler, "seems to favor a length from 90,000,000 to 120,000,000 years; some would make it much greater." [31] Speaking of Schuchert's reckoning which covers some 30,000,000 years, and was considered by him as being very conservative and by most geologists as inadequate, Tyler says:

"Let us take a measuring rod a little more than eight feet long; let every inch correspond roughly to 100,000 years. The uppermost tenth of an inch representing 10,000 years would cover the whole historical period, the epochs of the discovery of metals, and overlap the New Stone Age. One inch carries us far back in Palæolithic time. Osborn places the appearance of pithecanthropus, the ape-man, at about 500,000 B.C., five inches from the top of our scale. The beginning of the Cenozoic period, or Age of Mammals, the last and shortest of the great geological periods, some 3,000,000 years, carries us down two and one-half feet. The Mesozoic period, the Age of Reptiles, occupying 9,000,000 years, would require ninety inches and cover nearly the whole of our rod, on which all human history occupied a part of one-tenth of an inch. The Palæozoic period was, perhaps, twice as long as the Mesozoic, about 18,000,000 years." [32]

It is believed that the "geneological tree, showing the ancestral stems and probable lines of descent of the higher primates" from Arthur Keith's *The Antiquity of Man* will better illustrate the age of man.

[31] "The Coming of Man," Marshall Jones, 1923, p. 2.
[32] *Ibid.*, p. 1.

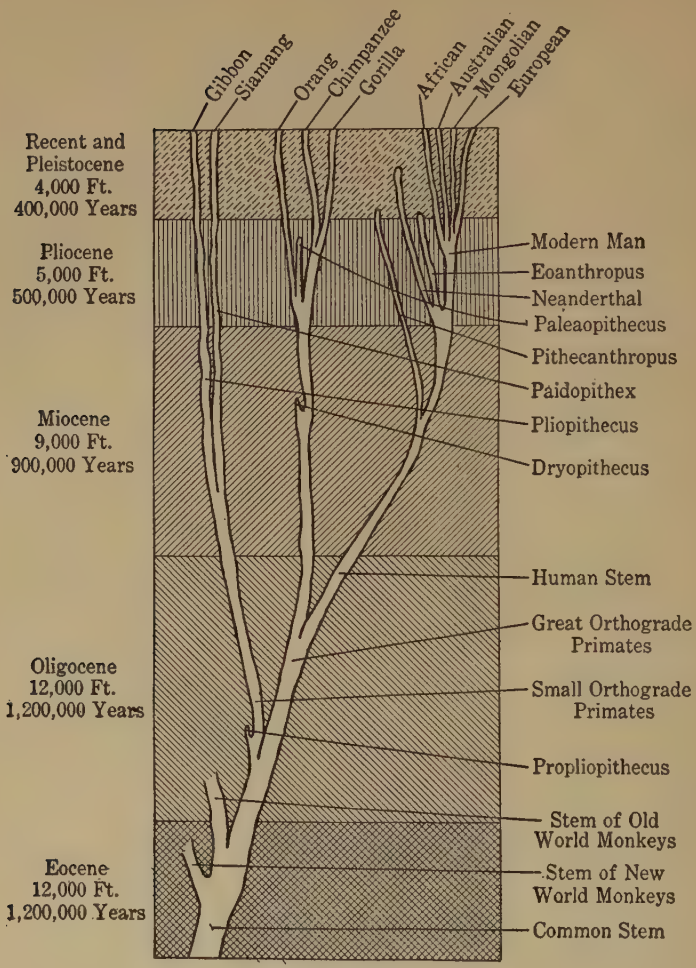


FIGURE 1

A Tentative Geneological Tree.
After Keith

CHAPTER II

THE FORMATION OF RACES

The early evolution of racial characters.—As was indicated in the last chapter, the preliterate tribe explained the differences between races on the basis that it was the *pure* one and that the other racial groups were degenerate offsprings. The Hebrews accounted for the differences by going back to the three sons of Noah. Each son gave rise to one race—Shem to the Hebrews, Ham to the Negroes, and Japheth to the Gentiles. Since such explanations are unsatisfactory from the anthropological viewpoint, more definite knowledge continues to be sought. So far, however, "origins of human races are wrapped in mystery, and the early wanderings of peoples are not much more definitely known. Nevertheless the subject is as fascinating as it is difficult, and many are those who, from human interest or sheer intellectual curiosity, have sought to push aside the curtains of ignorance that shut from our view the comings and goings of men in the most ancient world." [1]

This diffusion of the human family into races took place so far back in the darkness of prehistoric ages that a solution seems well nigh impossible. Authorities speculate concerning this baffling problem, but since facts cannot be collected and observed, we have to rely mainly on hypotheses and inferences. "We know very little," says Kroeber, "about the causes that change human types; and we possess only incomplete information as to the history of races. Stray bits of

[1] Case, C. M., "Outlines of Introductory Sociology," Harcourt, 1924, p. 201.

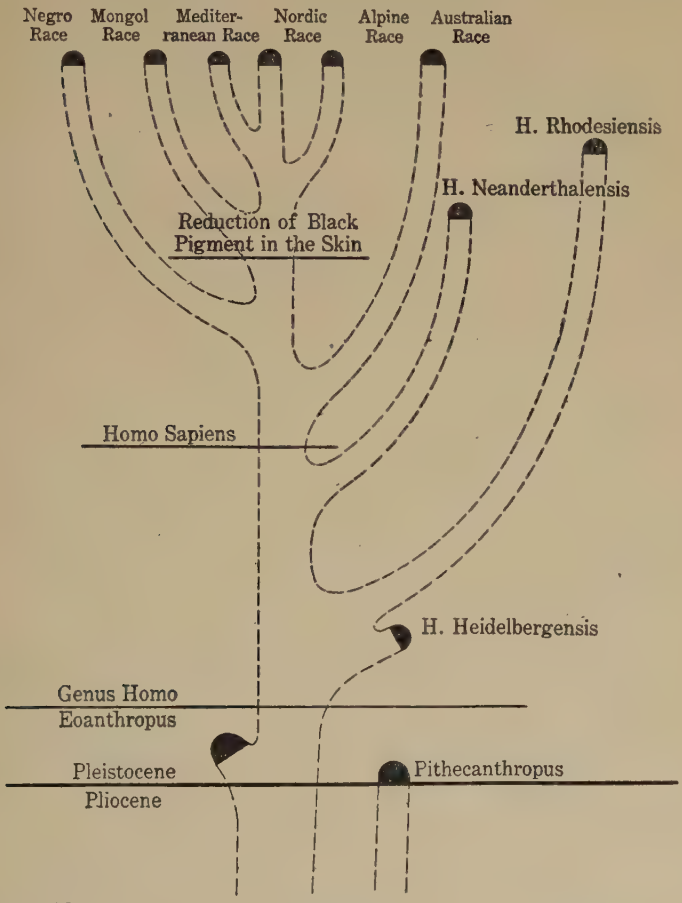
evidence here and there are too scattered to afford many helpful clues. The very earliest men, as we know them from fossils, are too far removed from any of the living varieties, are too primitive, to link very definitely with the existing races, which can all be regarded as intergrading varieties of a single species, *Homo sapiens*. In the latter half of the Old Stone Age, in the Aurignacian period, at a time estimated to have been from twenty to twenty-five thousand years ago, we commence to encounter fossils which seem to foreshadow the modern races. The so-called Grimaldi type of man from this period possesses Negroid affinities, the contemporary Crô-Magnon and perhaps Brünn types evince Caucasian ones. But we know neither the origin nor the precise descendants of these fossil races. They appear and then vanish from the scene. About all that we can conclude from this fragment of evidence is that the races of man as they are spread over the earth to-day must have been at least some tens of thousands of years in forming. What caused them to differentiate, on which part of the earth's surface each took on its peculiarities, how they further subdivided, what were the connecting links between them, and what happened to these lost links—on all these points the answer of anthropology is as yet incomplete.'' [2]

In trying to account for the development into races we are, it seems to me, forced to take one of three views: first, that man rose simultaneously in different places, localities, or continents; second, that he began existence with such wide variations and aptitudes that he made his way into the environment suited to his desires; or third, that he began as one group and migrated into different sections where the physical environment produced those differences which characterize races of today. The last named theory seems the most plausible and, generally speaking, is the most widely accepted. In the formation of races three stages are recognized: 1. The

[2] ''Anthropology,'' Harcourt, 1923, pp. 34–35.

specialization of the human form; 2. The evolution of varieties; and 3. The maintenance of these varieties.

1. *The specialization of the human form.* Just when and where man began to develop his specialized form will doubt-



After Smith

FIGURE 2

A Tentative Scheme of the Relationships of the Different Genera, Species, and Races of the Human Family.

less remain a mystery. As shown in the preceding chapter, it is now widely agreed that man's earliest home was in Asia, although it may be possible that Keane's submerged continent may in time become more acceptable. At any rate, we are reasonably sure he did not assume human form in Europe. "It would seem," writes Carr-Saunders, "that the pre-human ancestor of the Miocene and Pliocene was probably rather an obscure member of the primate stock retaining generalized features. Somehow without specialization, he managed to survive—possibly in some very limited area. When the rapid evolution of bodily form among the mammals had slowed down, the only specialization in which the pre-human ancestor had indulged began to stand him in good stead. That it carried him as far as it did—to the dominion over all living things—was made possible by the fact that his bodily form was not specialized, but was capable of being turned into an instrument of the mind. The evidence seems to indicate the late Pliocene or early Pleistocene as the era when man began to develop along this path. . . .

"With regard to the bodily evolution of man the first detailed knowledge we have is of the Neanderthal race. We know that Neanderthal man lived in the fourth glacial period. Before this epoch we know nothing of human bodily evolution except from three imperfect specimens which we cannot assign definitely to any period in the Pleistocene beyond placing them before the Middle Palaeolithic. No definite conclusions can be drawn as to the relation of these forms one to another, or to the forms which follow.

"Pithecanthropus may or may not be on the direct line leading to all the higher races. There is some probability that Heidelberg man is a forerunner of Neanderthal man, whereas Eoanthropus would seem to be related on the one hand to the hypothetical Pliocene ancestor, and on the other hand to the Late and not to the Middle Palaeolithic races. It is quite possible that, as Europe was not the scene of human

evolution, Piltdown and Heidelberg men represent varieties which have died out, and not stages from the main line of human evolution. This is certainly the case with the Neandertal race. In the Upper Palaeolithic we find races of as high a physical type as those of the present day, but we have no certain knowledge of their direct ancestors." [3]

While Carr-Saunders thinks man first assumed his human characters in the late Pliocene or early Pleistocene, Rev. E. O. James concludes "that man evolved from a common precursor early in the Pliocene epoch contemporary with pre-Chellean implements. From this common ancestor two stocks were produced in Europe—the Neanderthal and the Eoanthropus—Galley Hill—Crô-Magnon species of the human organism. Towards the end of the Glacial period the Neanderthal type became extinct, while the Piltdown—Galley Hill race survived as Aurignacian and Crô-Magnon man. On this hypothesis, the remains found at Grimaldi may represent a fusion between the types in Europe at the latter part of the Pleistocene epoch." [4]

2. *The evolution of varieties.* Passing from the time and place when man first began to assume his human form, we come to the evolution of varieties. The remains of primitive man seem to show that quite early there was an evolution of varieties of human beings. Carr-Saunders thinks it was in the intermediate period, which was of relatively immense length, that man changed from an arboreal to a terrestrial existence, adopted an upright position, wandered into new climate zones where natural, lethal, and sexual selections were accomplished. These things favored the evolution of varieties. "We are ignorant as to the physical characters of man at the close of the intermediate period, but we know that in

[3] "The Population Problem," Oxford University Press, 1922, pp. 129–30.

[4] James, E. O., "An Introduction to Anthropology," copyright, 1919, by Macmillan & Co., Ltd. (London), pp. 214–15. Reprinted by permission.

the earlier part of the Upper Palaeolithic there was existing one variety—the Grimaldi race—which bears certain resemblances to the negroid type, and that in the latter part of the same period there were existing several varieties closely resembling types of modern European man. It seems, therefore, that, so far as this period is concerned, we have to account not merely for the evolution of the main types but also for the evolution of the less easily distinguishable varieties of man. The splitting up may have begun in the former period but it probably did not go far."[5] He concludes "that the great changes in human bodily form were accomplished in the intermediate period when the splitting up into varieties may also have begun. This splitting was continued in the first period and the modern types were formed before the end of that period."[6]

"The hundred or more millennia of lower Palæolithic time rolled slowly away," writes J. M. Tyler. "Upper Palæolithic time covering the final retreat of the glaciers ushered in a new people and race which seems to have very largely replaced the Neanderthal folk. The new Crô-Magnon race was of a different physical and mental type and represented the noble savage. It is the wonder and admiration of all students of prehistory. They were tall, agile and vigorous, with high foreheads and strong features, and would have made fine models for the sculptors of to-day."[7]

3. *The maintenance of varieties.* With the evolution of varieties began the shaping of types. Somehow, through climatic and other selective forces and adaptations, certain racial types emerged and managed to retain general racial characteristics. Carr-Saunders thinks that the chief characteristic "of the first and second periods was the maintenance of types evolved, though this was interfered with by migra-

[5] "The Population Problem," Oxford University Press, 1922, pp. 370–71.

[6] *Ibid.*, p. 381.

[7] "The Coming of Man," Marshall Jones, 1923, p. 51.

tion which brought about elimination of certain types, racial mixture, and further climatic adaptation. Finally, in modern times there has been a lessening of the stringency of selection, which previously tended to maintain the existing varieties, and a turning of lethal selection to the building up of immunity against disease." [8]

"The extraordinary variability of modern Man," writes Carveth Read, "(considered as one species) in stature, shape of skull, size and power of brain, colour, hairiness, quality of hair, and other characters, physical and mental, may be referred chiefly to his having become adapted to various local conditions upon settling here or there for long periods of time after wandering over the world in quest of game. The settling of offshoots of the original stock in certain regions long enough for them to undergo adaptation to local circumstances is the simplest explanation of existing races: The Negro adapted to equatorial Africa; the Asiatic stock ('Mongolian') to Central Asia; the Mediterranean race to the neighbourhood of the sea after which it is named. As to the Nordic sub-race (of the Mediterranean, we may suppose), with its fair hair and skin, it has the appearance of an Arctic beast of prey, like the Polar bear. The snow-leopard of the Himalaya is found at a midway stage of such adaptation. Some geologists and zoologists now believe that, during the Glacial Period, the climate of Northern Europe was not everywhere such as necessarily to destroy the local fauna and flora, and in that case our ancestors may for ages have maintained themselves there; or, if that was impossible (as the absence of palaeolithic remains in Scandinavia seems to indicate), they may have roamed for many ages along the borders of glaciation, perhaps as far as the Pacific Coast. Chinese annals refer to fair tribes in Eastern Siberia 200 years before the Christian era; and it seems requisite to imagine some extensive reser-

[8] "The Population Problem," Oxford University Press, 1922, pp. 381–2.

voir of mankind in order to explain the origin of the vast hordes which in prehistoric as in historical times again and again invaded Europe. . . ." [9]

From the preceding discussion we see that we really know very little of the evolution of early human beings. According to Kroeber, the Grimaldi, Crô-Magnon, and perhaps Brünn types appeared some twenty to twenty-five thousand years ago, and the present races were some tens of thousands of years in evolving. As indicated before, the common view is that man evolved and began his variations in Asia and spread over the world in Palæolithic times. There is practically no evidence of the evolution of the human form in Europe. If he arrived there during the Great Ice Age, as evidence seems to warrant, he had already taken definite shape. There are evidences, however, of an inter-glacial man who arrived in Europe sometime during the glacial period or Great Ice Age. In Pleistocene times western Russia, Scandinavia, Scotland, northern England, and Germany, as far south as the Hartz Mountains, were covered with glaciers. On the south the Alpine glaciers extended northward leaving part of eastern Russia, a strip through central Europe, the southern part of England, and a boundary on the north shore of the Mediterranean, in which man could survive. During the third inter-glacial epoch England was perhaps joined to the continent and it was evidently during this time that man spread there from France. At any rate, it would appear that thousands of years ago, man evolved, spread over the world, differentiated by adapting himself to conditions and thus produced the racial groups of today.

Factors responsible for racial differences. — Although Carveth Read infers from the whiteness of children's hair that the race was formerly fairer than now, the consensus of opinion among anthropologists seems to be that primitive men

[9] "The Origin of Man," Cambridge University Press, 1920, p. 19.

were very much alike and were dark in color. "If, therefore," writes W. Z. Ripley, "as all consistent students of natural history hold to-day, the human races have evolved in the past from some common root type, this predominant dark colour must be regarded as the most primitive." Ripley thinks it is inconsistent "to suppose that ninety-nine per cent of the human species has varied from a blond ancestry, while the flaxen-haired Teutonic type alone has remained true to its primitive characteristics." [10] Taylor contends that since so many of the "dark races are lighter at birth, and lighter on unexposed portions of the body, it is possible that early man was a dark brown or red-brown colour." [11]

The head shape and stature of primitive man were evidently very similar to those of modern man. It is known that Palæolithic man had a long head, but by the end of the Neolithic epoch round heads had become quite common. Crô-Magnon man appeared as a tall race in contrast with the shorter races. Throughout this long prehistoric age man had been wandering into different climates and other conditions where the environmental influence played upon him and caused him to change and adjust himself to prevailing conditions. Somehow "he made his way to every quarter of the globe; and when he got there, though needing time, perhaps, to acquire the local colour, managed in the end to be at home." [12]

A number of theories have been proposed to explain the evolution of the physiological characteristics of races, and without doubt there have been many contributing factors; yet, it would appear, that the theories can be grouped under three chief heads: 1. Climate; 2. Racial mixtures; and 3. The functioning of the glands.

[10] "The Races of Europe," Appleton, 1899, pp. 465–66.
[11] "Environment and Race," Oxford University Press, 1923, p. 33.
[12] Marett, R. R., "Anthropology," Holt, 1912, p. 117.

1. *Climate.* Undoubtedly climate has played an important part in the development of certain racial characters. If we make use of the hypothetical contrast of the passionate Mediterranean with the phlegmatic Teuton, or the vivacious Negro with the stoic American Indian, we notice that there are other differences besides color and shape of the head, and these seem to continue. Unquestionably, part of these can be explained on the basis of culture, but then we have to explain the origin of the different cultures. Race, therefore, appears to be a consequence of conditions rather than a cause of differences and the general explanation has been climatic influences. For a long time it was accepted without question that pigmentation was a direct result of climate; but according to Dixon this thesis "can in the light of our present knowledge, no longer be maintained." [13]

Finot thinks that "colour is the direct effect of the *milieu.*" [14] Woodruff concludes that "man is invariably covered with a pigment which acts as an armor to exclude the more harmful short rays, and moreover the amount of pigment is in direct proportion to the intensity of the light of the country to which his ancestors have proved their adjustment by centuries or millenniums of survival in health and vigor. . . . Undoubtedly the Negro, when in the shade, is able to radiate heat better than whites and this enables him to keep cool in the tropics, but puts him at a disadvantage in the north where a white man can keep warmer with less clothing and less fire in the house. But it is a secondary cause enhancing the first, because when it comes to a question of light and cold, nature makes no mistake, but selects a color to exclude the light. Hence in all cold, light countries, i.e., steppes, plains and the arctics, there is pigmentation of a color in the lower end of the spectrum, red or yellow, with variations of brown, olive or copper. . . . All these red and yellow colors undoubtedly

[13] "The Building of Cultures," Scribner, 1928, p. 8.
[14] "Race Prejudice," Dutton, 1907, p. 104.

enable the native to conserve his heat almost as well as the white man, and at the same time, exclude the dangerous short waves.'' [15]

Huntington maintains that human evolution for a half-million years or more ''has been chiefly guided by two sets of facts, namely, the mutations that have occurred in man, especially in his skull and brain, and migration and natural selection under the influence of great pulsations of climate.'' [16] Semple believes ''We can hardly err in attributing the great lung capacity, massive chests, and abnormally large torsos of the Quichua and Aymara Indians inhabiting the high Andean plateaus to the rarefied air found at an altitude of 10,000 or 15,000 feet above sea level.'' [17] East asks: ''Why are there black peoples, yellow peoples, and white peoples? It is because in early times families left the patriarchal fireside, wandered away in various directions, and established themselves in different climes. As time went on, some of their many hereditary units changed, and thus produced numerous variations, both physical and mental. When these variations prevented or deterred their possessors from flitting along life's highway and leaving descendants, they disappeared, leaving no record of their existence. Their germ-plasm with its peculiar qualities ceased to exist, just as perhaps did the germ-plasm on which depended the wonderful combinations of qualities which gave a Golden Age to Greece. But some of these changes gave their holders a handicap over the others in combating the environment in which they found themselves. They persisted, outbred the older type, increased in numbers, and founded new strains of mankind. There is definite evidence that thousands of such differences now separate the primary races; though it is obvious that hereditary

[15] ''The Effects of Tropical Light on the White Man,'' Rebman, 1905, p. 85 f.

[16] ''The Character of Races,'' Scribner, 1924, p. 39.

[17] ''The Influence of Geographic Environment,'' Holt, 1911, p. 34.

units, presumably much more numerous, are common property of all.'' [18]

Some writers, while assuming that all the different races of men are derived from a common stock, claim that racial characters did not become prominent at first. They think that the first differentiation of human beings into racial types was due almost exclusively to the differences in the physical environments; and that the other conditions which accentuated these racial differences developed very slowly, and did not assume importance until about the beginning of the nation-making or historic period. Carr-Saunders believes ''man spread into various climatic zones before the beginning of the first period of history. The consequences of this spreading of man must have been twofold. Mankind became segregated into groups, the surroundings of which differed, first in that they were subject to different climatic environments, and secondly in that they were forced to pursue different modes of life.'' [19] Haddon goes a step further when he says ''there seems to be good evidence that climatic conditions have indirectly become impressed on the germ-plasm so that definite responses have become heritable. In any case, natural selection, or rather elimination, has always been at work and, combined with isolation areas, has produced stocks with certain associated characters, and it is to such stocks that the term 'races' can be applied.'' [20]

2. *Racial mixtures.* Some authorities stress the effects of racial mixtures in the development of racial differences. Undoubtedly, Palæolithic and Neolithic men met, fought, conquered, interbred, and amalgamated, giving rise to new types. Dixon says: ''From the complex fusion between these archetypes, or fundamental races, modified by environment especially in outward characters of pigmentation, hair, etc., the

[18] Mankind at the Crossroads, Scribner, 1923, pp. 30–31.

[19] ''The Population Problem,'' Oxford University Press, 1922, p. 371.

[20] Haddon, A. C., ''The Races of Man,'' copyright 1925 by Macmillan & Co., Ltd. (London), p. 150. Reprinted by permission

existing, actual races which might be described as stable blends, have been derived." [21]

"A considerable mixture between different races, stocks, or whatever they may be called," writes Haddon, "has doubtless taken place at all periods, hence it is extremely difficult to determine whether the modifications from the supposed average type of any given people are due to inherent variability, to reactions to the conditions under which they are living or have previously lived, or to race mixture.

"A racial type is after all but an artificial concept, though long-continued geographical isolation in areas of characterisation does tend to produce a general uniformity of physical appearance. There are, however, groups of mankind that exhibit so many intermediate characters that it is often very difficult to classify them. These may be due to racial mixture through long periods of time, but we must always bear in mind that they may be undifferentiated stocks, relics of early man, who have not acquired distinctive traits in areas of characterization." [22]

3. *Functioning of the glands.* Sir Arthur Keith [23] explains racial differences on the basis of the degree of functioning of the different glands. The greater activity of the pituitary gives the Caucasian his height of stature, bulk of body, prominent chin, strong eyebrow ridges, and pronounced nazalization. A lessening of the thyroid gives greater pigmentation of skin, less amount of hair on the body, flattened face, bulging forehead, and flattened root of the nose, characteristic of the Mongolian and to a lesser degree of the Negro. A greater activity of the interstitial gives the Caucasian a more robust appearance, a quicker development of physical character, and an abundance of hair on the body.

[21] "The Racial History of Man," Scribner, 1923, p. 502.

[22] Haddon, A. C., "The Races of Man," copyright, 1925, by Macmillan & Co., Ltd. (London), pp. 150–51. Reprinted by permission.

[23] Compare report of the 89th meeting of the British Association for the Advancement of Science, Sept., 1919, pp. 275–81.

The suprarenal glands help regulate the growth of body and pigmentation of skin. The pineal gland is also concerned with body growth. If the functioning of the glands is basic in explaining racial differences, we still have the problem of explaining why they are more active among some races than others. Some, however, have endeavored to explain this on the basis of geographic factors.

In conclusion, we may say that Finot, Woodruff, and East stress the influence of geographic factors on the pigmentation of the skin; Huntington and Semple on the body form; East and Haddon, the gradual impression of these influences on the germ plasm; while McDougall and Carr-Saunders think the modes of living have been influenced by climate and in turn have themselves become influences. Dixon and Haddon stress racial mixtures also as contributing factors, Huntington mentions mutations, but to Keith the glands are a sufficient explanation.

Primitive man evidently wandered from his cradle and grew up with definite characteristics stamped upon him through thousands of years of dwelling in relatively isolated localities. "When history began," asserts Chapin, "men found themselves already possessed of those characteristics of skin color, hair form, and head shape, which serve as the marks of race." [24]

Climate undoubtedly played an important part, indirectly at least, in the formation of races. It has been comparatively easy to account for pigmentation, color and form of hair, and color of eyes, on the basis of climate, but the shape of the eyes, nose, jaws, and head has not been so easily explained. Perhaps climatic and other physical factors, the way people lived and made their living, variations, mutations, racial mixtures, periods of isolation, and the functioning of the different glands should all be considered as contributory factors in the

[24] "An Introduction to the Study of Social Evolution," Second Edition, Century, 1919, p. 205.

formation of racial types. Even then it is not easy to explain the color of the Eskimos, and account for the blond peoples who have dwelt in Africa for thousands of years. It would appear that it takes thousands of years for the characteristics of a race to develop, but, once developed, they continue for very long periods even in a changed environment, unless racial crossing takes place.

Early wanderings.—It has been stated that man wandered to practically all parts of the world in Palæolithic times. A study of the map on page 36 shows Griffith Taylor's idea of the broader lines of dispersal of the main racial groups. Taylor thinks that Asia is "the cradle-land of the peoples of the world. The great migrations have been thrust out of Asia in four great waves during the million years of Post-Pliocene time. An attempt is made to correlate these thrusts with the four advances of the Great Ice Sheet from the Pole, which occurred within the same period."[25] He maintains that Neanderthal man moved out of Asia after the Second Ice Age and reached Europe during the Third Ice Age; and that the Third Ice Age drove the earliest Iberians out of Asia and they appeared in Europe as Crô-Magnon before the Last Ice Age. "A series of zones is shown to exist in the East Indies and in Australasia, which is so arranged that the most primitive are found farthest from Asia, and the most advanced nearest to Asia. This distribution about Asia is shown to be true in the other 'peninsulas', and is of fundamental importance in discussing the evolution and ethnological status of the peoples concerned."[26] He says that regardless of "whichever region we consider, Africa, Europe, Australia, or America, we find that the major migrations have always been from Asia. The dominant feature of its ethnology is the solid mass of broad-skulled peoples in Central and East Asia. A great wedge of these folk projects into Europe and con-

[25] "Environment and Race," Oxford University Press, 1927, p. 10.
[26] *Ibid.*, p. 8.

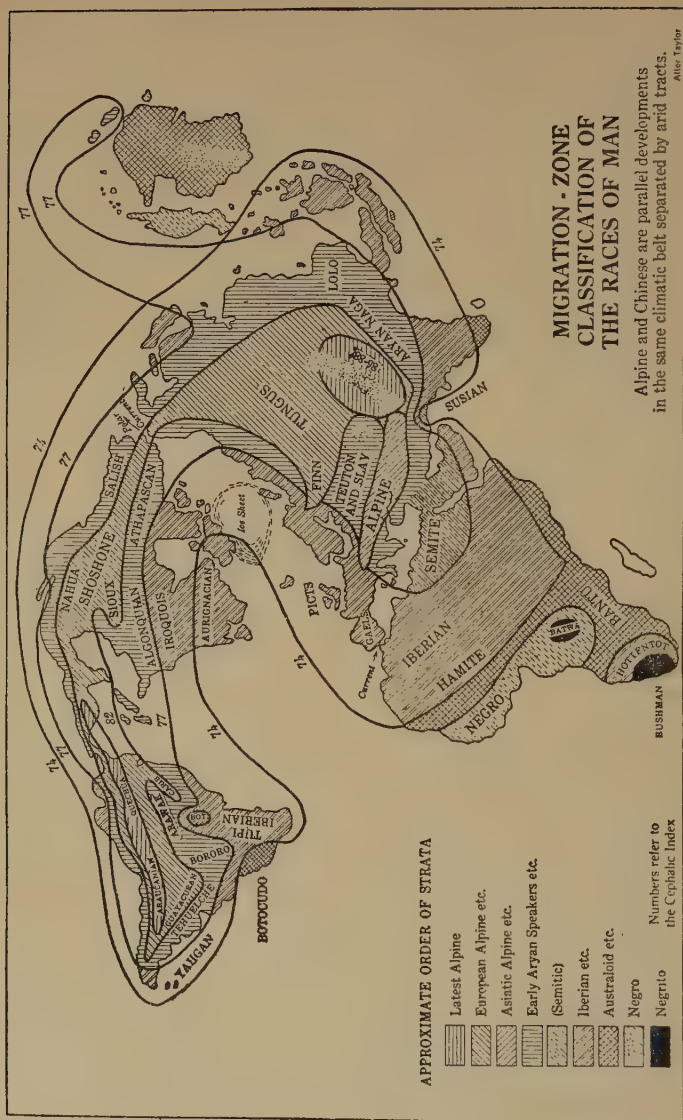

MIGRATION - ZONE
CLASSIFICATION OF
THE RACES OF MAN
Alpine and Chinese are parallel developments
in the same climatic belt separated by arid tracts.
After Taylor
APPROXIMATE ORDER OF STRATA
Latest Alpine
European Alpine etc.
Asiatic Alpine etc.
Early Aryan Speakers etc.
(Semitic)
Iberian etc.
Australoid etc.
Negro
Negrito
Numbers refer to
the Cephalic Index
NAHUA
SHOSHONE
SIOUX
SALISH
ATHAPASCAN
ALGONQUIAN
IROQUOIS
AURIGNACIAN
Ice Sheet
TUNGUS
FINN
TEUTON AND SLAV
ALPINE
SEMITE
PICTS
GAELS
Current
IBERIAN
HAMITE
NEGRO
BANTU
BATWA
HOTTENTOT
BUSHMAN
LOLO
ARYAN NAGA
SUSIAN
TUPI
IBERIAN
BOROBO
BOTOCUDO
YAHGAN
QUECHUA
ARAUCANIAN
GUAYACURAN
TEHUELCHE
77
74
75
82

FIGURE 3

stitutes the European *Alpine* peoples. A somewhat similar wedge of peoples projects down the 'corridor' of migration along the western side of the Americas. A third wedge reaches south from China into the East Indies. All round the margins of these broad-heads we find a 'shatter-belt' of long-head peoples. Thus on the south it extends from the Alps through the Caucasus and Himalayas to the Indonesian Islands of Melanesia.'' [27]

Dixon [28] gives a lucid description of the races and their wanderings. He divides early man into eight types—Proto-Australoid, Proto-Negroid, Mediterranean, Caspian, Mongoloid, Palæ-Alpine, Ural, and Alpine. While each of these groups had a more or less definite territorial spread, some extended practically all over the earth; consequently there has been much overlapping of territories.

1. The *Proto-Australoid* had a short stature, was dolichocephalic, had a brown skin, and straight or slightly wavy dark hair. The skin became black in southern latitudes and light in northern. The hair also changed and became ''kinky'' in southern latitudes. From the center of dispersion, which was tropical Asia, especially the southwestern part, including Java, Sumatra, and Borneo, it went southeast into Austral-Asia; west, passing through India and the north African coast into Europe, where it composed the majority of the early Palæolithic people and introduced the rudiments of civilization, especially tool-making, the use of fire and clothes, and the rudiments of religion; north and east into America. In northern Europe it crossed with the Caspian and was an element in the formation of the so-called ''Nordic'' group. The Negro slaves introduced into North and South Americas contained elements of this race. Its chief strength in the New World, however, was among the Iroquois and southern Algonkian tribes of North America. Today the Proto-Austra-

[27] ''Environment and Race,'' Oxford University Press, 1927, p. 10.
[28] ''The Racial History of Man,'' Scribner, 1923.

loid is dominant in parts of Australia and Melanesia. Mixed with the Proto-Negroids it is prominent in Africa, southern and northeastern India, and other countries around the Indian Ocean.

2. The *Proto-Negroid* group was dolichocephalic, tall, with dark brown skin and curly or frizzly hair. The skin and hair lightened in northern latitudes. From northern and western Africa this group dispersed throughout Africa; east to Polynesia and Australia, passing through India, southeastern Asia, Melanesia, and Indonesia; north into western Europe; and north and east to America. Although the Proto-Negroid is more definitely a child of the tropics than the Proto-Australoid, is more permanently settled around the Indian Ocean, and is apparently a younger group, it largely drifted with the Proto-Australoid and blended with it. In the Baltic region of Europe it also mingled with the Mediterranean and Caspian groups, thus helping to form the Nordics. In the New World it was mixed with the Iroquois, southern Algonkians, tribes along the Mexican border, Brazilian Highlands, and in Patagonia. Today the Proto-Negroid is dominant in western Africa, northern Australia, and in parts of Melanesia. Mixed with the Proto-Australoid it forms the bulk of the Negro group of today and forms a strata for the so-called Malay group. There are very few traces of the Proto-Negroid group in Europe although at one time it was prominent along the northern Mediterranean coast and in the Baltic region. It probably invaded Europe in Palæolithic times. It undoubtedly crossed with other groups but its color has largely been "bleached out" today. There really seem to have been two sub-types of the Proto-Negroid, one much darker than the other. This group has been quite influential in several countries; and, mixed with the Proto-Australoid and Caspian groups, has played a prominent part in the history of Egypt.

3. The *Mediterranean* group was short, dolichocephalic,

with a brunette skin, and dark hair. From the eastern Mediterranean and Black Sea regions this group spread into Arabia, northern Africa, southern Italy, Sicily, Sardinia, the Iberian Peninsula, Great Britain, and the west coast of Norway, chiefly following the Caspian and amalgamating with it. Next to the Caspian it is the most important element in the Nordic blend. It was dominant among the ancient Cretans, Berbers, Moroccans, and the Egyptians after the Eighteenth Dynasty. It is associated with the Neolithic culture in Europe, earlier Minoan periods of Crete, and the Bronze Age in Siberia. Today this group is prominent around the Mediterranean Sea, especially in southern Italy, France, Spain, Sicily, Sardinia, Portugal, and parts of Ireland, England, Wales, and western Norway. In America it is prominent where Spanish and Portuguese settled and ruled. Remnants are found in western India, among some Eskimos, and some Indian tribes on the Pacific Coast.

4. The *Caspian* type had a fair skin, brown wavy hair, hazel eyes; was tall and dolichocephalic. From the Eur-Asiatic Steppes of southeastern Russia and southwestern Siberia this group wandered into Europe in the Upper Palæolithic times; east across northern Asia into America; and south into Arabia and northern Africa. In early Europe it evidently constituted the Crô-Magnon group and later spread over practically all of Europe and a considerable part of the world. Undoubtedly it spread over the western coast of Europe, the southern end of the Caspian Sea, northern India, parts of China, New Zealand, Micronesia, and northern Africa. It constituted the dominant element in the Nordic blend; produced the leaders in northern Italy; composed the Dorian invaders of northern Greece. Very early it spread over practically all of Asia, and in the second century B.C., mixed with the Mediterranean group, again spread over much of India, where it became the Hindu or ruling caste. As Kassites, Medes, and Persians it dominated Persia and the Tigris-Euphrates region. In early

Egypt it was an important element and composed the bulk of "Hamitic" Negroes or Abyssinians. Today this group is dominant among the Eskimos and important in the Nordic blend in Scandinavia and other regions of northwestern Europe and in settlers from these countries. It is a minor element in other parts of Europe, northern India, Tibet, Japan (Ainu), southwestern China, and Polynesia. It appears to be one of the oldest groups in the New World and is still prominent in many Indian tribes.

5. The *Mongoloid* group was very short, brachycephalic, with a yellowish skin and "Mongoloid" eyes. It seems to be one of the older, if not the oldest of the types. It developed in inner Asia along the eastern plateau, which remains its homeland; and spread west into Africa and the Balkan regions in early Palæolithic times, and east and southeast into Mongolia, where with the Palæ-Alpine it built the Mongol Empire. It appears to have been a strong element in Belgium and parts of Switzerland in Neolithic times. It represented a minor element in the Canary Islands, but later amalgamated with the Proto-Australoid and Proto-Negroid groups. Today it is dominant in its homeland and among the Lapps, and is moderately represented in the central European highlands. There are indications of the presence of this group among the Bushmen in South Africa and Plains tribes of North America.

6. The *Palæ-Alpine* type was short, brachycephalic, with a brownish skin, straight black hair, and perhaps "Mongoloid" eyes. This group arose adjacent the Mongoloid, in the eastern and southern portion of the Asiatic plateau, largely wandered with it, and in Europe amalgamated with it. There appear to have been two sub-types of the Palæ-Alpine group, one much lighter than the other. The dark sub-type has practically disappeared—probably amalgamated with other dark groups—except among certain tribes in the Philippines, and Pygmy tribes of the Congo jungle, where it is dominant,

and in the Malay Peninsula and in the Andaman Islands, where it is a minor element. The lighter sub-type spread east and south through parts of Asia into Indo-China, and west around the northern shore of the Black Sea into central Europe. Its stronghold has been in Asia—Korea, Japan, Mongolia, and western Turkestan. It is represented throughout the central highlands of Europe and also in Indonesia; but it is practically absent in Africa and in the New World, except the tribes in the United States west of the Rocky Mountains and those of the Amazon Valley.

7. The *Ural* type appears to be a very uncertain group. It seems to have been tall, brachycephalic, with light features. It spread from the Ural Mountains and may be a sub-type that developed there, losing much of its earlier insignia. Apparently it never spread to China, Japan, or any of southern Asia. Even in eastern Asia it came relatively late and from a northern source. It is nowhere important today but represents an important minority among the Highlanders of central Europe, Finns, Prussians, Basques, some Turkish groups, the tribes of Venezuela, and to a lesser extent among the Algonkian and Siouan tribes of North America. It appears to have reached south Germany in the late Palæolithic times, and France, Belgium, and Switzerland in Neolithic times.

The Ural type seems to have blended into two main subtypes. (1) The *Nordic* blend is very tall, dolichocephalic, with a fair skin, light wavy hair, and blue or hazel eyes. This sub-type developed in the Baltic area, migrated across northern and western Europe, and became the dominant element in the countries of northwestern Europe and where these people have colonized. (2) The *Hebrew*, the other sub-type, is very mixed. It seems to have split into two main groups: in general the *Sephardim* resembles the Mediterranean type while the *Ashkenazim* is like the Alpine. Palestine, which became the reservoir of the Hebrew, was probably settled in

the second or third century B.C. by Mediterraneans with Caspian affinities. The early Hebrews perhaps resembled the modern Berber, whose nose is straight, but amalgamated with an Alpine Hittite group which gave a small part of them the so-called "Jewish nose." From Palestine this sub-type wandered west and south into Asia Minor, northern Africa, Italy, and Spain, and later into England and Holland; north and northwest into Anatolia, Armenia, Persia, the Caucasus, and later into Europe, especially into Russia, Poland, and Germany.

8. The *Alpine* group was tall, brachycephalic, with a fair skin and straight dark hair. It seems to be rather closely related to the Caspian, Palæ-Alpine, and Ural types with which it continued to amalgamate as contacts took place. From the western Asiatic Plateau it wandered west into Europe. The first migration followed the southern coast, but later migrations went through central European highlands. In Neolithic times it amalgamated with the Palæ-Alpine group and expanded into France, southwest Germany, Belgium, and during the Bronze Age reached England, composing the so-called Celtic people. Later groups of these people migrating from Asia into Europe were known as Avars, Huns, Magyars, Turks, and Tatars. During the Bronze Age it wandered west and south into Arabia, Egypt, and western India; east into Manchuria, Korea, Japan, Indonesia, and China; north and east into America where it composed the dominant element of the Indian tribes, especially the Aztecs, Incas, and Cliff Dwellers, and became responsible for the high state of civilization found among these tribes. In many respects this group has been and continues to be the most important racial type. "The Alpine type," according to Dixon, "is at the present day unquestionably dominant throughout the larger portion of the world—that is, if we consider the New World as if it were uninfluenced by European settlement, and as if it were still occupied by the aboriginal peoples which were

found there in the fifteenth century. In Europe it is in the majority everywhere apparently except along the western and northern borders; in Asia it preponderates except in the extreme south and southeast; in the New World it characterizes the great mass of the aboriginal population; in Oceania it is largely represented in Indonesia and in western and central Polynesia. Only Australia and the greater part of Africa lie outside its range."[29]

[29] "The Racial History of Man," Scribner, 1923, p. 495.

CHAPTER III

THE CLASSIFICATION OF RACES

The superficial observer does not distinguish between the various types of a species. To him all species of quail are just quail. But when we compare the quail in the eastern section of the United States with those in the southwest, we find a difference in color. Those in the southwest conform more to the color of sage brush and add a topknot. If we compare the quail in the Philippine Islands with those found in the United States, we find that the Philippine quail is only about one-third as large and approaches more nearly the color of those in the Atlantic seaboard region. If we compare the squirrels in the United States alone, we find them varying widely in color and size. In size they vary from a chipmunk to a fox-squirrel. In color, we find the white, black, red, grey, and striped. Some live in the ground, others in trees; some fly. All persimmon trees look alike to me, yet we are informed that there are over three hundred varieties of this tree. In every species, including the human, there are many variations.

People in tribal society did not face the many perplexing problems we have today in distinguishing the different types of the human family. Tribes rarely came in contact with other tribes differing radically from them in physical appearance. They, however, had ways of distinguishing their members from members of other tribes. As migration increased the problem increased. Today race is used to cover a multitude of differences; we refer to anyone who differs from us in color of skin, color or form of hair, to one who possesses

a different culture, speaks a different language, or even belongs to a different government as being of a different race. Since such distinctions are entirely too superficial for the student, he must seek a more definite basis for classification.

The bases for classifying races.—The criteria for the separation of the human family into races may be divided into two kinds: (1) The superficial or external, and (2) The internal, skeletal, or structural.

1. *The superficial or external.* This basis of classification includes such factors as the color or pigmentation of the skin, color and texture of the hair, color and shape of the eyes, and shape of the nose and face. These are obtained by direct observation and are very conspicuous; consequently they are the oldest and most common method used in judging races. In general there is a harmonic correlation between skin color, color and texture of the hair, color of the eyes, and shape of the nose; but variations are so common that each should be considered separately.

(1) COLOR OF THE SKIN. All races have pigment but it varies in amount; consequently we vary in color. It is a very defective method of judging because of the overlapping among the races. For example, the Caucasian group varies from pinkish-white among North Europeans to light-brown among the Western Asiatics, North Africans, and Polynesians. The yellow-skinned vary from very light-brown or yellow to a very dark-brown or yellow among Mongoloid Asiatics, Amerinds, Bushmen, and Hottentots. The black-skinned vary from a dark chocolate brown to a real black. Various shades of black are found among Australians, Melanesians, Negroes, Negroids, Pre-Dravidians, and Papuans. Very few of these are really black.

(2) COLOR AND TEXTURE OF THE HAIR. Hair may be straight, wavy, woolly, black, red, or light brown; smooth, wavy and curly hair is found in Europe, Western Asia, North Africa, India, Australia, and other localities

where these people have spread. Straight black hair is characteristic of the people of Asia and the more direct descendants of Asiatics, such as the American Indians. Woolly black hair is characteristic of Negroes and their descendants. It forms itself into "pepper-corn" knots among the Bushmen; grows very short among Negritos and Negrillos, a little longer among Negroes, and long among the Papuans and Melanesians. In Europe, we find the greatest variety of hair color, but here the bulk of the people have dark brown or black hair. Even in North Europe the hair often has a brown or reddish tinge, and black hair is common in some sections of Sweden. Red hair is prevalent among the Finns, moderately common among the Jews, Scottish Highlanders, and Welsh.

Hair on the face and body is sometimes mentioned in the classification of races. Many sub-races have a scant beard or no beard at all and very little hair on their bodies. Heavy beards and hairy bodies are prevalent among Caucasians.

(3) THE COLOR AND SHAPE OF THE EYES. The pigmentation of the iris varies greatly among races. Some shade of brown or black is the most common color, but among North Europeans blue eyes are prevalent. Grey or hazel eyes are common among central Europeans.

Another eye distinction is in the fissure, slit or opening of the eye. The fissure is horizontal and normally wide among Europeans, but quite narrow among north Asiatics. The opening is almond-shaped among many south Europeans and near-Eastern peoples. The "oblique," "slant-eyed," "slit-eyed," or "Mongolian-eyed" is characteristic of Asiatics.

(4) THE SHAPE OF THE NOSE. Nose shape varies widely among peoples and even within the same race, or sub-race. The nose may be broad or pinched at the root, and the bridge may be high, medium, or low. The nose may be long, medium, or short, straight, concave, convex, aquiline or sinuous. The end may be rounded-off, turned up, or slightly flattened. The nostrils may be broad, medium, or narrow. The base of the nose

may be depressed, horizontal, or reflected. In general, Caucasians have narrow noses, Negroes broad, and Mongolians medium. The so-called "Jewish nose" seems not to be typically Semitic, but rather typical of the Hittites. Proof of this is, the Semitic Bedouins do not possess it, while the Armenians, the modern representatives of the Hittites, do.

(5) SHAPE OF THE FACE. The face usually harmonizes with the shape of the head so that a narrow face accompanies a narrow head. There are notable exceptions, however; for broad faces with long heads occur among Crô-Magnon Eskimos, and narrow faces with broad heads are common among the French Basques.

Some groups are characterized by a flat forehead, while others have a bulbous one. Some groups, like the Negro, are prognathous; others, like the American Indian, have prominent cheek bones. Variations, however, are common among almost all racial types.

2. *The internal skeletal or structural.* While not disregarding the superficial or external criteria, later anthropologists have added the exact measurements of the bony skeletal part to the body, stressing the cephalic, altitudinal, nasal, and stature indices.

(1) THE CEPHALIC INDEX. The cephalic or cranial index measures the breadth of the head above the ears and expresses it in the percentage of its length from the forehead to the back. If we assume the length to be 100, the width is expressed in a fraction of this. When the ratio is below 75 the head is called dolichocephalic (narrow-head); if it is between 75 and 80, it is mesocephalic (medium-head); and if above 80, it is brachycephalic (broad-head). Some anthropologists make only two classifications. In that case all below 78 are termed dolichocephalic, and those above 78 are brachycephalic. This means of classification has the advantage of accuracy, and it enables us to compare prehistoric races with those of today.

(2) THE ALTITUDINAL INDEX. Realizing that some heads are well arched while others are low or flattened, and that the cephalic index did not measure this, anthropologists have added the altitudinal (length-height) index. If the altitudinal index is less than 58 it is termed platycephalic, if between 58 and 63 it is orthocephalic, and above 63 hypsicephalic. While certain head shapes are more or less characteristic of races and types, we should remember that various shapes have existed since Neolithic times. This makes Boas' contentions [1] that certain Europeans change their head shape in this country in one generation or less exceedingly questionable.

(3) THE NASAL INDEX. This means of classifying races is widely used and claimed by some to be the surest method of distinguishing racial types. The nasal index is expressed by means of the width (opening in the bony structure between the eyes) in relation to the length (measured from the root to the anterior nasal spine). According to the greater or less breadth of the nasal opening in relation to its length, a person is known as leptorrhinian (long-nosed), platyrrhinian (flat-nosed), or mesorrhinian (medium-nosed). Those less than 70 are leptorrhinians, above 85 platyrrhinians, and between 70 and 85 mesorrhinians.

(4) STATURE. Races and sub-races are often referred to according to height. Those classified as pygmy are not over 58¼ inches high. Groups classified as short are between 58¼ and 62¼ inches; medium between 62¼ and 66 inches; tall between 66 and 67¾ inches; and very tall over 67¾ inches. Within certain limits there is great variation among any racial type. Most of the Chinese we see in the United States are short but sometimes we see one over six feet tall. Climatic, eugenic, and economic conditions seem to have some effect on stature.

Races classified.—Just as there is disagreement as to the

[1] Compare "Changes in Bodily Forms of Descendants of Immigrants," *Senate Documents*, Vol. LXIV, Washington, 1911.

basis of classifying races so there is no absolute agreement as to a real classification. Boas makes a twofold classification, placing the Caucasian and Mongolian on one side and the Negro on the other. Linnæus and Cuvier had three each, and Blumenbach five. Haeckel established twelve races in 1873 but increased the number to thirty-four in 1878. In 1878 Topinard found sixteen races but in 1886 nineteen. In 1889 Deniker found thirteen races and thirty sub-divisions, but eleven years later his classification included seventeen races and twenty-nine sub-divisions. This gives some indication of how difficult it is for scientific men to classify races and establish sub-divisions. And while counting "sub-types," to use James's figure, may be as profitable as counting stones on a New Hampshire farm, it is well for us to examine some of the broader classifications of racial types.

One of the oldest classifications is on the basis of the three sons of Noah. This theory maintains that Ham, because of his "mark," was the progenitor of the Negroes, Shem of the Semites, and Japheth the rest of us. Both the Bible and biology, however, are silent on Cain's color. Cuvier (1769-1832) gave prominence to this theory and it still exists among certain religious groups. Linnæus, writing in 1735, made three divisions of mankind: sapiens (educated or civilized), ferus (wild), and monstrous (monster).

Blumenbach, writing in 1775, coined the word Caucasian in which he included Swedes and Arabs, and established a five-fold classification: (1) Caucasian, (2) Mongolian, (3) Ethiopian, (4) American Indian, and (5) Malay. He described the Caucasians as having white skins, red cheeks, brown hair, narrow noses, oval faces, smooth foreheads, and round skulls. The Mongolians he pictured as having yellow skins, straight black hair, small noses, narrow eyes, projecting cheek bones, and almost square heads. The Ethiopians he described as having dark brown skins, dark curly or woolly hair, broad noses, protruding lips, prominent upper jaws and long heads. The

American Indian he pictured as a copper-colored people, having straight black hair, broad faces, and skulls often deformed. He describes the Malays as having chestnut brown skins, thick curly black hair, thick lips, and broad noses.

This classification is often reduced to a threefold one. In this case the American Indian is classed with the Mongolian and the Malay is regarded as a cross between the Mongolian and the Ethiopian. Indeed, the threefold classification is the one generally held today as being the most satisfactory. Yet it is more for convenience than with conviction that our ethnologists and anthropologists have become accustomed to recognize the white, the yellow, and the black as the three primary groups of human beings. Different writers divide these into numerous sub-races, breeds and stocks.

The Caucasian or white group is characterized by broad hip-girdle, retreating cheek bones, small teeth, prominent narrow nose, straight soft hair, and well-developed beards. Along with the white-skinned, fair-haired, tall *Nordics* come the dark-complexioned, dark-haired, stocky *Alpines,* and the small dark Mediterraneans with their dark skins and black eyes. Thus one finds a wide variation of this type.

The Mongolian or yellow group is characterized by straight black hair, yellowish skins, narrow sunken eyes, small nose, broad face, prominent cheek-bones, and diverse types of skull. This group includes Chinese, Japanese, Burmese, Siamese, Malays, Tibetans, brown Polynesians, American Indians, Eskimos, Finns, Lapps, Magyars, and Turks.

The Negro or black group is characterized by black or dark skins, thick lips, broad flat noses, frizzly hair, large teeth, prominent eyes, long heads, and low hip-girdle. This group includes the African tribes with all the divergences between the different Pygmy tribes of central Africa and the Bushmen of South Africa; the black fellows and Melanesians. The characteristics of the Negro, as well as those of the Mongolian and Caucasian, vary widely among the different groups and

there is much overlapping; consequently such classifications are worth very little scientifically.

F. H. Giddings [2] fathered a theory that man arose in southern Asia. There was a period when the human group was undifferentiated, the most direct projection of which is the white race. He believes the white race to be the most plastic and that it has come down from Palæolithic times. As this race worked its way toward Europe, what is now the yellow race split off and settled in Asia. The black race split off and settled in Africa, while the white race migrated on into Europe. His classification is as follows:

1. *The Australian-African Group.* This group is characterized as having black skins, and being dolichocephalic, prognathic, with woolly or frizzly hair. It inhabits Australia and Africa south of the equator.

2. *The Polynesian-European Group.* The characteristics of this group are fair skin, straight or wavy hair, mesocephalic, orthognathic. This group inhabits a broad zone from Polynesia northwest through southwestern Asia, northern Africa, and most of Europe.

3. *The Asia-American Group.* This group is characterized as having yellow or red skin, straight hair, narrow eyes, and being brachycephalic. It inhabits eastern Asia and western America, north of the equator.

Giddings divides the European part of the Polynesian-European race into two groups with two sub-divisions.

I. *The Eur-African Race.* This racial type varies from blond to dark skin and has a relatively long head. (1) The Baltic type has fair skin, very light hair, blue eyes, narrow aquiline nose, long head and face, and is tall. It inhabits northwestern Europe—the regions of the Teutonic people of Europe. (2) The Mediterranean type has dark brown or black hair, dark eyes, long head and face, broad nose, medium

[2] Compare Chapin, F. S., "An Introduction to the Study of Social Evolution," Second Edition, Century, 1919, Chapter VII.

or slender stature. It inhabits southern Europe, including southern Italy and France.

II. *The Eur-Asian Race.* This is a round-headed type. (1) The Alpine type has chestnut hair, large grey eyes, broad face, round head, medium stocky stature. It inhabits the Alpine highlands. (2) The Danubian type has blue eyes, light or red hair, broad face, round head, is tall and heavily built. This group inhabits the northern Alpine highlands and the entire Danube valley.

Dixon gives a very concise classification of the racial types of the human family.

CHARACTERS OF THE EIGHT PRIMARY TYPES [3]

Types	*Head*	*Face*	*Nose*	*Prognathism*	*Capacity*
Proto–Australoid	Long Low	Medium broad	Broad	Moderate	Small
Proto–Negroid	Long High	Medium broad	Broad	Moderate	Small
Mediterranean	Long Low	Narrow	Narrow	None	Large
Caspian	Long High	Narrow	Narrow	None	Large
Mongoloid	Round Low	Broad	Broad	Moderate	Medium
Palæ–Alpine	Round High	Broad	Broad	Moderate	Medium
Ural	Round Low	Medium	Narrow	None	(Largest)
Alpine	Round High	Medium	Narrow	None	Largest

On the basis of the head, the Proto-Australoid and the Mediterranean could be placed in one group, the Proto-Negroid and Caspian in another, the Mongolian and Ural in another, and the Palæ-Alpine and Alpine in another. Judged on the basis of face, nose, prognathism, and capacity the

[3] "The Racial History of Man," Scribner, 1923, p. 500.

Proto-Australoid and Proto-Negroid form one group; the Caspian and Mediterranean another; the Palæ-Alpine and Mongolian, another; and the Ural and Alpine, another.

Dixon thinks these groups do not exist in their purity today, but have wandered far from their homelands and amalgamated with each other, forming the types that now exist. In regard to their original homeland, he says:

"Whereas the Proto-Australoid and Proto-Negroid types seem to have had their origin in the tropics, and the Mongoloid and Palæ-Alpine upon the great central Asiatic plateaus, the Caspian and Mediterranean types seem to be traceable to the Eur-Asiatic steppes surounding the Caspian Sea and the regions adjacent to it, north to the plateaus. If the Proto-Australoid and Proto-Negroid types have been, except in the very earliest period, the most stay-at-home of types, the Caspian and Mediterranean, especially the former, have been of all the most adventurous."[4]

We may say the human family is one, capable of being divided into at least three main divisions and numerous subdivisions. Each race and each sub-division varies within certain limits in color, head-shape, and other distinguishable characteristics. The whole matter is somewhat confused and apparently far from settled. There is an approach to an agreement on the major divisions but difficulties increase when we try to place the sub-divisions or types under one of the major groups. For instance, some anthropologists and ethnologists would place the American Indian with the Mongolian, while Dixon thinks he is predominantly an Alpine. Some would include the Magyars with the Mongolian, while others assign them to the Caucasian. A few would place the Bulgarians with Mongolians while others contend they are Slavs. Another group includes the Rumanians with the Latins, but others say they are Slavs. It would appear that in the dim

[4] "The Racial History of Man," Scribner, 1923, p. 509.

prehistoric past the races started migrating and amalgamating, forever wrecking any accurate classification.

In general, we may say that the Bulgars, Chinese, Eskimos, Finns, Formosans, Japanese, Koreans, Lapps, Magyars, Malays, Siamese, Turkomans, and Turks are of Mongolian origins. The Caucasian includes such as Albanians, Arabs, Assyrians, Egyptians, Hamites, Hawaiians, Hellenes, Hindus, Indonesians, Latins, Libyans, Phœnicians, Samoans, Semites, Slavs, and Teutons. The Negro includes such as Australians, Bantu, Bushmen, Hottentot, and Negroes of the Malay Peninsula, India, Java, New Guinea, and Melanesia. Many member-groups of these groups are so mixed that a classification is well nigh impossible. Some have sub-strata of several earlier groups. The Bushmen and Hottentots, for example, have a strong Mongolian sub-strata. Perhaps we are safe in saying that the human family started in Asia as one race, but such a thing as a pure race does not exist today.

The population of Europe is of special interest to most of the present inhabitants of the New World, Australia, New Zealand, and the white colonies of Africa, because either they or their immediate ancestors came from Europe. The population of Europe is commonly divided into three groups—Nordic, Alpine, and Mediterranean. The Nordic group is supposed to inhabit the northern portion of Europe, the Alpines the central portion, and the Mediterraneans around the north shore of the Mediterranean Sea.

The origin of the Nordics is something of a mystery. Dixon thinks they are the result of the Caspian-Mediterranean types amalgamating with the Baltic tribes and dwelling for a long time in relative isolation. Marett says that the original home "of the so-called Nordic race, the large-limbed, fair men of the Teutonic world, remains something of a mystery; though it is now the fashion to place it in the north-east of Europe rather than in Asia, and to suppose it to have been more or less isolated from the rest of the world by formerly

existing sheets of water." [5] The problem is further complicated because blonds are represented on Egyptian monuments as early as 1700 B.C., and Lybians with white skin, blue eyes and fair beards, are reported in Thebes around 1300 B.C.

The Alpines are usually assigned an Asiatic origin. Dixon thinks they followed the Palæ-Alpines and Caspians into Europe and largely amalgamated with them. They may be the result of a round-headed,white stock coming from the Caspian regions of Asia and coming in contact with the Baltic stock north of the Alps and the Mediterranean stock south. "The mountain belt," according to Marett, "is throughout its entire length the home of round-headed peoples, the so-called Alpine race, which is generally supposed to have originally come from the high plateau country of Asia. These round-headed men in western Europe appear wherever there are hills, throwing out offshoots by way of the highlands of central France into Brittany, and even reaching the British Isles. Here they introduced the use of bronze (an invention possibly acquired by contract with Egyptians in the near East), though without leaving any marked traces of themselves amongst the permanent population. At the other end of Europe they affected Greece by way of a steady though limited infiltration; whilst in Asia Minor they issued forth from their hills as the formidable Hittites, the people, by the way, to whom the Jews are said to owe their characteristic, yet non-Semitic, noses." [6]

The Mediterranean group is given both Asia and Africa as an original home. Dixon thinks that the best evidence points to the country around the Black Sea. But Marett says: "It is in North Africa that we must probably place the original hot-bed of that Mediterranean race, slight and dark with oval heads and faces, who during the neolithic period colonized the opposite side of the Mediterranean, and threw out a wing along the warm Atlantic coast as far north as Scotland, as well

[5] "Anthropology," Holt, 1912, p. 109.
[6] *Ibid.*, pp. 106–7.

as eastwards to the Upper Danube; whilst by way of south and east they certainly overran Egypt, Arabia, and Somaliland, with probable ramifications still farther in both directions.'' [7]

Such a broad classification of the population of Europe encounters many difficulties. All of these groups are mixtures of earlier groups and contain many variations within themselves. It seems to have no place for the Gypsies who appear to be Indian; the Pre-Aryan Basques; Iranian Armenians; Semitic Jews and Maltese; and the Mongolian Finns, Lapps, Esths, Magyars, Turks, and Tatars. Then there is a dispute as to whether the Rumanians are Mediterraneans or Alpines; whether the Bulgarians are Alpines or Mongolians; and whether the Slavs are Alpines or Nordics. The so-called Celtic group presents another obstacle to classification. All seem to agree that most of the people of Europe belong to the Caucasian race.

[7] ''Anthropology,'' Holt, 1912, pp. 104–5.

PART II

BIOLOGY AND RACIAL PROBLEMS

CHAPTER IV

HEREDITY AND EUGENICS

Theories of heredity.—The study of heredity is an important subject for students of our time. Many of our major social problems have a biological setting and therefore it is essential that we know something of the laws of heredity. We have no intention of minimizing the importance of the social environment, but it is well for us to remember that the best geographical or social environment in the world will not put intelligence into the head of an idiot, or incubate an eagle from a goose egg.

Very preliterate people are reported as knowing no connection between coition and reproduction and as having no theories of heredity. Gradually they developed, either consciously or unconsciously, certain practices such as exogamous marriages and the destruction of the weaker children, which are significant from the eugenic point of view.

The Greeks appear to have been the first people to speculate on theories of evolution, heredity, and eugenics, and it is remarkable how true some of their guesses have proved to be. Thales of Miletus, some five hundred years before Jesus, "saw that eternal change characterized nature and thought that water was the principal element." Anaximander thought that living beings developed from lifeless matter. Empedocles

asserted that there are "four elements—eternal, indestructible —fire, air, earth, water." He apparently believed in the survival of the fittest. Aristotle believed life originated in water or slime. He classified sponges as animals. Children, he thought, inherited the characters acquired by their parents.

With the development of the Christian church practically all scientific inquiry was stamped out; the Bible came to be accepted *verbatim et literatim,* and those who dared to disagree were introduced to the stake and fire. Most people were too busy speculating on how to gain admission to a future world of bliss to make many scientific discoveries. One would expect a change with the inauguration of the Protestant Reformation, but the founder failed to establish the rule of reason.[1]

Linnæus (1707–1778). In the seventeenth century John Ray attempted to catalogue the plants and animals, but the real study of natural science began with Linnæus. At first he believed in the current doctrine of his day, that God created a pair of each species of animals and that there had been no change since. His studies, however, forced him to change his views and by 1762 he admitted the existence of new types, but explained these as being hybrids. After four years of further study he abandoned the idea of the fixity of the species, and thus cleared the ground for new theories.

Buffon (1707–1788). In early life Buffon believed in the fixity of the species, but by middle life he was emphasizing the rapid variation of the species. Buffon is a bit inconsistent in his thesis and appears to lack conviction, but this is perhaps due to the fact that he lived at a time when it was dangerous to express unorthodox views. He apparently believed that the structure of plants and animals was modified by environment and that these modifications were preserved through heredity, that the production of the various races of man was chiefly due to climate, and that human intervention caused the new varie-

[1] Compare Kelsey, C., "The Physical Basis of Society," Appleton, 1916, pp. 157–58.

ties of animals. Through nature there was a struggle for existence.

Erasmus Darwin (1731–1802). Erasmus Darwin, the grandfather of Charles Darwin and Sir Francis Galton, was a physician, naturalist, and minor poet. Between the ideas of Erasmus Darwin and Lamarck, who were contemporaries, there is a striking similarity, though they were developed independently. Darwin stressed the internal origin of adaptive characters rather than the direct action of environment. "All animals," he said, "undergo transformations which are in part produced by their own exertions, in response to pleasures and pains, and many of these acquired forms or propensities are transmitted to their posterity." He believed in the struggle for existence, but for some reason never saw that this struggle led to the survival of the fittest, the major doctrine of his illustrious grandson. He thought all life arose from one primordial protoplasmic mass and that organic evolution was a process that had been going on for millions of years.

Lamarck (1744–1829). Lamarck is considered the greatest of the French evolutionists, "the founder of the complete Modern Theory of Descent," and "the most prominent figure between Aristotle and Darwin." Lamarck was closely associated with Buffon. At the age of forty-nine he changed from botany to zoölogy and subsequently changed from a belief in the fixity of the species to one of mutability, caused indirectly through influence upon the nervous system. At the age of fifty-eight he outlined his evolutionary theory and coined the word biology as the title for natural science. In 1809 he published his "Philosophie Zoologique" in which he states his four laws:[2]

1. Life, by its proper forces, continually tends to increase the volume of every body which possesses it, and to increase the size of its parts, up to a limit which brings it about.

[2] Compare Osborn, H. F., "From the Greeks to Darwin," Scribner, 1924, p. 166.

2. The production of a new organ in the animal body results from the supervention of a new want which continues to make itself felt, and a new movement which this want gives rise to and maintains.

3. The development of organs and their powers of action are constantly in ratio to the employment of these organs.

4. Everything which has been acquired, impressed upon or changed, in the organization of the individuals, during the course of their life, is preserved by generation and transmitted to new individuals which have descended from those which have undergone these changes.

Lamarck believed that use developed an organ and disuse destroyed it. In this way he explained the development of wings of fowls, of horns of cattle; and by disuse he explained the loss of the hind limbs of whales and the blindness of certain animals. The competition in nature, he maintained, caused the smaller forms of life to increase very rapidly and the larger forms, slowly; so that a physiological balance is maintained. He believed that "great changes in environment bring about changes in the habits of animals. Changes in their wants necessarily bring about parallel changes in their habits. If new wants become constant or very lasting, they form new habits, the new habits involve the use of new parts, or a different use of old parts, which results finally in the production of new organs and the modification of old ones." [3]

Lamarck's fourth law, the inheritance of acquired characteristics, now known as the "Lamarckian Doctrine," caused a controversy in his day and in ours. It is one of the most interesting theories of heredity, and although it has been generally rejected since the time of Weismann, there is a trend today back toward a modified theory of this "law."

Charles Darwin (1809–1882). Two great emancipators

[3] Quoted by Osborn, H. F., "From the Greeks to Darwin," Scribner, 1924, p. 168.

have the distinction of seeing light on the same day: Darwin became the "emancipator of human minds from the shackles of slavery of tradition," and Lincoln, "the emancipator of human bodies from a no more real physical bondage."

The publication of Darwin's book, "The Origin of Species," in 1859 is said to have been one of the most important events in the history of biology. This was not due to new ideas, because most of his ideas had been presented before, but to his inductive method. Newman says, "He was the first to furnish a really adequate proof of the fact of evolution and his causo-mechanical theory to explain the method of evolution was supported by a mass of systematically arranged data such as has been paralleled neither before nor since." [4]

Darwin's theories are usually associated with the theories of A. R. Wallace. Both men worked independently yet arrived at similar conclusions. Darwin shows the influence of Spencer, Malthus, and Lamarck, the latter being the only man he is said to have spoken disdainfully of, yet whose theory he later defended. Darwin's most important theory is natural selection. He used artificial selection to illustrate natural selection. In artificial selection the breeder selects those qualities which he desires and breeds from those animals which show those qualities. Something of the same kind takes place in natural selection. Plants and animals tend to multiply in a geometrical ratio, and as there is not enough food for all the plants and animals produced, part have to perish. There are variations among the different species of plants and animals. Those which have variations that enable them to live under the conditions in which they are placed survive and become the parents of the next generation, thus passing on the more favorable characters. Each generation, then, tends to approach a more complete adaptation to the conditions of life. At the same time sexual selection is taking place. The males

[4] "Evolution, Genetics and Eugenics," University of Chicago Press, 1925, p. 24.

with the longest horns whip their opponents and sire the next generation.

Herbert Spencer (1820–1903). Spencer was an ardent and able supporter of evolution. Theoretically, he was more of a Lamarckian than a Darwinian. He appears to have worked out the first consistent theory of the mechanical heredity. He compared the structural units of protoplasm with the molecules of chemical compounds. Each different local region of protoplasm, he thought, was made up of "physiological units." Each part of the body was giving off its particular units or "gemmules" into the blood which collected in the germ cells. In this way he explained atavism and the inheritance of acquired characters. This physical basis of organic structure appears to have been the basis for Darwin's theory of "pangenesis."

Gregor Mendel (1822–1884). Mendel was a teacher of physics and natural sciences, a monk and later an abbot of an Augustinian monastery at Brünn, Austria. Mendel carried on his experiment with twenty-two varieties of garden peas for eight years. He discovered that inheritance was through unit characters, part of which were *dominant* while others were *recessive.* When yellow-seeded peas were crossed with green-seeded ones, yellow showed in the hybrid generation. This he called dominant. Self-fertilization of hybrid generation showed that green was not blotted out but was dormant for one generation. This he called recessive. The ratio in this generation (F_2) was three yellow and one green. By growing these peas separately he discovered that the green peas were homozygous and bred true, but that the yellow peas were both homozygous and heterozygous; one-third were homozygous and bred true, while the other two-thirds were heterozygous and gave a ratio of three yellow to one green. The importance of this discovery was the phenomenon of segregation. The germ cell is composed of a number of separately inheritable unit characters which may result in a number of combinations

without destroying the unit determiners. Through this discovery evolution changes from one of ferocious struggle to one of a more peaceful nature, since the new advantageous characters incorporate themselves into a new species and survive.

Since the rediscovery of Mendel's law by De Vries, Correns, and Tschermak, they, their students, and other biologists have carried on many experiments. The experiments have been continued with plants and small animals, and, as yet we cannot say these apply exactly to human beings. Still quite a list of characters, such as eye and hair color, certain head forms; certain deformities, as polydactylism, brachydactylism; certain sex-linked diseases, as color-blindness, and deaf-mutism, feeble-mindedness, and insanity are thought by a few to follow the Mendelian law.

Francis Galton (1822–1911). Galton, a cousin of Charles Darwin, was the father of biometry, and the founder of the Galton Laboratories in England. Galton is famous for his "law" of tending toward normal or "the law of regression," and his theory of ancestral inheritance. According to the first, children of exceptional parents will tend "toward mediocrity in proportion to the degree of parental exception." According to the second theory we inherit one-half from our parents, half of the remainder from our grandparents, and so on.

August Weismann (1834–1914). Weismann published his epoch-making book, "The Germplasm," in 1893. Before this time Lamarckianism was generally accepted. In 1885, by announcing he could discover no way in which changes in body cells produced any effect upon the germ cells, he caused as much excitement among biologists as Darwinism did among theologians. Weismann proposed the "germinal selection" theory, contending that the germ cell contained the heritable variations. According to Weismann the "determiners" for new characters arise in the germ cell and from there work outward to all the parts of the developing body.

While with Darwin the "gemmules" originate in the body and work inward to the germ cells. Weismann believed a continual struggle was going on among the determiners for the best position or for the most food; those that got the initial advantage brought about the development of the more perfectly adapted organ, while the weaker determiners were gradually crowded out so that they either passed away or initiated only degenerate or vestigial organs. In the "panmixia" theory degenerating structures or vestigial organs may be produced by a change in environment which causes these organs to be of less value or of no value.

According to Weismann's theory of "germinal continuity" each germ cell is a product of the division of a previous germ cell and its life extends back to the first germ cell. The germ cell gives rise to the soma cell, but what influences the soma cell has no influence on the germ cell. This changes the relationship between parents and children, since both come from the same germ plasm, and largely refutes Lamarck's major doctrine.

Weismann was the chief opponent of Lamarck and carried practically all biologists with him, so that his germ-plasm theory became the cornerstone of modern genetics. But biologists are not so sure of the truth of Weismann's theory as they once were and this doubt is leading to a renewed interest in the problems of heredity.

Hugo De Vries (1848–). In 1901 De Vries, a Dutch biologist, published his work on the mutation theory. De Vries' mutation theory is practically the same as Korchinsky's "heterogenesis," but supported by more experimental data. De Vries experimented with the evening primrose and discovered two kinds of variations: (1) Fluctuation, or those variations which are due to the environment. These are slight changes brought about by a change in the environment. They are not permanent. (2) Mutations, or those variations which are sudden steps without any apparent transition. They are

permanent and always breed true—they are caused by a change in the germ plasm and are hereditary.

Evolution undoubtedly is true and all but universally accepted, but as yet there is no one generally accepted theory of evolution. Lamarck said it was by the inheritance of acquired characters; Darwin, by a slow, gradual process in which environment played an important part; Mendel, by a recombination of unit characters giving a new organism without transition stages; Weismann, by the initiation of the more favored determiners in the germ plasm; and De Vries, by sudden mutations. According to De Vries these mutations have no connection with environment; environment, however, may determine which mutant survives.

The eugenic movement.—Interest in eugenics is perhaps as old as that of heredity. Indeed, the two interests are often mingled or united in the writings of a number of authors. Since preliterate tribes often killed the weak and deformed children, we may assume that they were not devoid of all eugenic ideas. We know that as early as the first half of the sixth century B.C. Theognis, the Greek poet, wrote: "We look for rams and asses and stallions of good stock, and one believes that good will come from good; yet a good man minds not to wed an evil daughter of an evil sire, if he but give her much wealth. . . . Marvel not that the stock of our folk is tarnished, for the good is mingling with the base." Theognis was followed by Plato and Aristotle, both of whom emphasized quality through the exposure of weak and crippled children and the regulation of marriage. That the Romans were also acquainted with eugenics is shown by Seneca's assurance that it is "not passion, but reason, to separate the useless from the fit."

These early Greek and Roman periods of interests were followed by almost two thousand years in which eugenic ideas were more often ignored than expressed. Occasionally, however, different authors manifested an interest. Some would

have eugenic marriage by having southern and northern Europeans intermarry, by regulating the age of marriage, by restricting the marriage of the poor, or by having marriage for five- or ten-year periods with the possibility of renewing the contract. Colonna, writing in 1473, feared that early marriage might produce weak children; Botero thought that too great a discrepancy in the age of the couple might effect the offsprings; and Campanella exclaimed: "We exhibit a studious care for our breeding of horses and dogs, but neglect the breeding of human beings."

It was not, however, until the publication of Galton's article on "Heredity, Talent, and Character," in 1865, and his book, "Hereditary Genius," in 1869, that the eugenic movement may be considered as fully launched. Galton sought to show that sons with marked abilities have intelligent fathers, and that the religious wars and sacerdotal celibacy do the race an irreparable harm. He was followed by William Greg, who published his "Enigmas of Life" in 1872. Greg did not favor the keeping alive of generations of weaklings, defectives, and incompetents, and would permit only the "pure, vigorous, and well developed" to reproduce.

Since the time of Galton and Greg the movement has gained headway. Within recent years the trend has been away from the more formal theories of heredity and more toward the improvement of the race.[5] Although there is not enough positivity as to the working of the so-called laws of heredity among the human race, to predict the ultimate outcome, eugenics is not to be overlooked or overstressed. A great deal of work has been done along the line of heredity and eugenics, much yet remains to be done, and many problems remain.

1. *The inheritance of physical characters.* Practically all the theories of heredity are based on experiments with plants and animals. So far very little experimental work has been done with human beings, and most of our theories are from

[5] Compare Darwin, L., *Forum*, Vol. LXXVII (1927), pp. 204–13.

analogies. When we observe individuals in the mass of humanity we observe several kinds and colors of eyes, of hair, different shaped heads, jaws, ears, and noses, and we conclude that these are in some way inherited. Dark curly hair and brown eyes are thought to be dominant, while light, straight hair and blue eyes are recessives. Certain physical abnormalities have been studied, but we are not sure just how they are inherited, if at all. Farabee studied a family in Pennsylvania, many members of which had all their fingers and toes two-jointed instead of three-jointed. The thirteen families contained 35 abnormal and 33 normal children; from one brachydactylous mother there were 35 abnormal descendants. In these familiies when the abnormal members married normals the children were all normal. Guyer found that a polydactylous father had five abnormal descendants out of nine in four families. Pearson found that seven out of eight descendants of an achondroplastic father were abnormal. Deaf-mutism is classified as a recessive, yet Pearson found that all of the nine descendants of a deaf couple were abnormal. Clarence Loeb studied 304 families in which hereditary blindness occurred and found that 58 per cent of the 1012 children were affected. These studies, however, are by no means conclusive.

Many abnormal peculiarties find expression in both males and females while others are peculiar to one sex only, and are known as sex-linked. Polydactylism, brachydactylism, syndactylism, certain forms of cataract, Huntington's chorea, and diabetes insipidus are common to both sexes. Other abnormalities and diseases find expression in one sex only. Color-blindness, hæmophilia, and a certain kind of cataract are almost always, if not always, confined to males. Exophthalmic goiter, on the other hand, is rare in males. Some abnormalities, as albinism, tend to skip a generation or even two generations.

2. *The inheritance of mental characters.* It has been stated that experiments have been carried on chiefly with plants and

animals. These have been on the physical basis. Only recently have we attempted to delve into the almost unexplored field of mental characters and do scientific work. Quite a number of investigations have been made from time to time, however, and although they are not always accurate, they give us some idea of the inheritance of mental abilities, defects, and diseases.

(1) THE INHERITANCE OF MENTAL ABILITIES. There has been a considerable amount of investigation along this line by Galton, Woods, Nearing, and others. The descendants of Erasmus Darwin appear to offer a striking illustration of the inheritance of special abilities. This family had nine outstanding individuals in two generations. In less than two centuries the Bach family produced twenty-nine musical geniuses. After studying the royal families of Europe, Woods asserts "that modern royalty, as a whole, has been decidedly superior to the average European in capacity; and we may say without danger of refutation that the royal breed, considered as a unit, is superior to any other one family, be it that of noble or commoner." [6]

Nearing's [7] contrast of the Jukes with the Edwards families would seem to show that special abilities "run" in families as well as inferior ones.

MAX "JUKE" (Born 1720)

1,200 descendants identified
440 viciously diseased
400 physical wrecks
300 died in childhood
300 in poorhouse (2,300 years in all)
130 convicted of crime.
60 habitual thieves (Averaged twelve years in jail)
50 notorious prostitutes
7 murderers
"None of them ever contributed to social welfare."
Their active and potential cost to society was $1,250,000.

[6] "Mental and Moral Heredity in Royalty," Holt, 1906, p. 301.
[7] Compare *North American Review*, Vol. 197, May, 1913, p. 633.

JONATHAN EDWARDS (Born 1703)

1,394 descendants identified
295 college graduates
100 lawyers
100 clergymen and musicians
80 held public office
75 army and navy officers
65 college professors
60 physicians
60 prominent authors
30 judges
13 college presidents
3 United States Senators
1 Vice-President
("It is not known that any of them was ever convicted of crime.")

(2) THE INHERITANCE OF MENTAL DEFECTS. What at first appeared to be a thorough-going investigation of mental defects was made by Goddard and is the subject matter of his book, "The Kallikak Family." The starting point of this long line of defective individuals was a certain Martin Kallikak, who, as a revolutionary soldier, had illegitimate intercourse with a mentally defective girl, and started a generation of degenerate people, 480 of whom Goddard was able to trace. "One hundred and forty-three of these," he says, "we have conclusive proof were or are feebleminded, while only forty-six have been found normal; the rest are unknown or doubtful." Of these 480 descendants, 36 were illegitimate, 33 sexually immoral, mostly prostitutes, 24 confirmed alcoholics, 3 epileptics, 3 criminals, 8 kept houses of ill fame, and 82 died in infancy. The Kallikaks married into other families, usually of about the same type, and produced 1,146 known individuals. "Of this large group we have discovered that two hundred and sixty-two were feebleminded, while one hundred and ninety-seven are considered normal, the remaining five hundred and eighty-one being still undetermined."

Investigations of several other degenerate groups, such as the Nams, Pineys, Tribe of Ishmael, Zeroes, and Hill Folk reveal the same long tale of mental defectiveness, poverty,

alcoholism, and prostitution. Consequently, investigators believe that some mental defectiveness is inherited, but they are not sure how or when it is inherited. Some have tried to connect it with the Mendelian law, but the evidence that mental defect acts as a unit character is far from conclusive. Following the lead of Goddard people have expected that mentally defective parents would produce defective children. Goddard found that out of 41 matings where both parents were "feebleminded," 222 of the 224 children were feebleminded.[8]

It is known that certain families show a tendency toward the mental disease called "insanity," sometimes toward a particular type of insanity, but yet we do not know how it is inherited, if at all. A few writers think it acts as a Mendelian recessive, but most authorities are very careful about connecting insanity with the Mendelian law. There appear to be so many causes of insanity that many investigators are loath to say what part heredity plays, if any.

The causes for the mysterious malady known as epilepsy are unknown. It is now thought to be highly hereditary, and some people think it acts as a Mendelian recessive. Epilepsy appears to be connected with other mental diseases. Weeks[9] found that out of 55 offspring, who lived to be old enough to be classified, resulting from 15 matings in which one parent was feebleminded and the other epileptic, 28 were epileptic, 26 feebleminded, and 1 insane. All the children classified, resulting from 27 matings where both parents were either feebleminded or epileptic, were abnormal, 43 were epileptic, 58 feebleminded, 1 insane, 2 migranous, and 8 neurotic. Thus, it would appear, that there is some connection between the different kinds of mental defects, and it has been suggested that a large number of people are "tainted," and this taint expresses itself in various ways such as epilepsy, feeblemindedness, insanity, and other defects.

[8] For a criticism of Goddard's method, see Bossard, J. H. S., "Problems of Social Well-Being," Harper, pp. 482–87.

[9] Compare "The Inheritance of Epilepsy; Problems in Eugenics," 1912, pp. 62–99.

It used to be contended that practically all mental defects had a hereditary causation, but more and more doubt is being expressed in regard to the formerly accepted hypothesis. In 1912 Davenport and Danielson declared that "Feeble-mindedness is due to the absence, now of one set of traits, now of quite a different set."[10] In 1921 Holmes asserted that "Most of the facts of the inheritance of mental defect are conformable to the hypothesis that such defect is dependent upon a number of factors instead of a single one."[11] The investigations at Letchworth Village by Dr. H. W. Potter showed that about one-half of the inmates were of a non-hereditary character.[12] The report further "showed that practically all cases of idiocy are not hereditary, but have their origin in some disease or injury of the central nervous system."[13] *The Fourth Annual Report of the New York State Commission for Mental Defectives,* 1923 (p. 14) shows that out of 1,955 cases of mental deficiency, only 41.5 per cent "showed bad heredity." On the basis of these reports and his own studies, Dr. S. P. Davies concludes that "it is more than probable that the percentage of non-hereditary cases among the feebleminded outside of institutions would be well over 50 per cent."[14]

(3) POSITIVE AND NEGATIVE EUGENICS. Along with the change in findings of investigators has come a change in the points of stress of the eugenists. Following the lead of Galton, the eugenists stressed positive eugenics or the increasing of the number of superiors. They pointed out that superiors fathered superiors, that the germ plasm of superiors should be kept pure, and that it was not being kept pure by royalty marrying peasants as was one time customary in Russia, or by the catch-as-catch-can system of marriage of the western nations. The Darwin, Edwards, Bach, and other notable families were held

[10] "The Hill Folk," Mem. Eugenics Record Office, No. 1, 1912, p. 9.
[11] "The Trend of the Race," Harcourt, 1921, p. 39.
[12] Davies, S. P., "Social Control of the Feebleminded," National Committee for Mental Hygiene, 1923, p. 79.
[13] Compare *Fourteenth Annual Report of the Board of Managers of Letchworth Village,* 1923, p. 25.
[14] *Op. cit.,* p. 79.

up as examples of good heredity. A number, however, did not accept this doctrine. "Many people argue," writes F. A. Woods, "that great geniuses, coming as they frequently do from humble families, Franklin and Lincoln, for instance, discount our belief in mental heredity; when, on the other hand, these men should only strengthen our reliance in this same force. We should consider the thousands, indeed millions, of mediocrities, who have to be born from mediocrities, before one mind of the type of Franklin's is produced. That they rise superior to their circumstances, is in itself a proof of the inborn nature of their minds and characters. A man of this sort represents a combination of the best from many ancestors. It would be possible in a great many throws to cast a large number of dice so that they all would fall aces. But here in certain regions of royalty as among the Montmorencys and Hohenzollerns where the dice are loaded, such a result may be expected in a large percentage of throws." [15]

According to Galton there are 250 out of every 1,000,000 who have distinguished themselves quite frequently by purely original work or as leaders of opinion. The most gifted members of distinguished judges' families had 26 per cent geniuses and there were 36 per cent of their sons who were geniuses. In other words, the son of an eminent judge was 1,500 times as liable to become eminent as the son of the average man.[16] According to Whetham 26 per cent of the fathers and 60 per cent of the sons of sixty-five eminent scientific men studied were eminent.[17]

"There is every reason to believe," thinks Kelsey, "that any given trait might be maintained provided mates were sought among those having similar characters." [18] This raises

[15] "Mental and Moral Heredity in Royalty," Holt, 1906, p. 299.
[16] Compare "Hereditary Genius," Macmillan (London), 1892, pp. 6–9, 49–78.
[17] Compare "The Family and the Nation," Longmans (London), 1909, pp. 89–90.
[18] "The Physical Basis of Society," Appleton, 1916, p. 262.

the question of consanguineous marriage, since it is often a relative that possesses the desired qualities. Such marriages are generally considered harmful since many of us are thought to bear recessive taints and thus offer a double opportunity for the taint to appear, but such a marriage was not detrimental in the Darwin family. "Neither inbreeding nor outbreeding," asserts Carr-Saunders, "is in itself advantageous or harmful."[19] Holmes contends that quite a bit of close intermarrying "has occurred in the Walcotts, Edwards, and other old New England families who have produced many of our most able men. Consanguineous marriages have probably been a means of conserving superior ability in some of the royal families of Europe, although in others they have served to bring out a neuropathic inheritance."[20]

Redfield insists that the age of parents has something to do in producing men of superior ability, and in that way the stock can be improved. According to his statistics of 571 eminent men, a child born to a father 60 or more years of age has over fifty chances to become eminent to one born of very young parents. "Slow breeding," he concludes, "is an essential to the production of superior stock, and when properly used, inferior stock can be transformed into superior stock in about 100 years, and into eminent men in less than 200 years."[21] "There is no reason whatever," writes Carr-Saunders, "to think that parents of advanced years tend, because they are old, to endow their children with an inherited equipment different from that which they endowed their earlier-born children."[22] Huntington thinks that it is true that eminent men tend to be the sons of comparatively old fathers, but that this is not due to the father's age. He explains it as being due to the fact that the "type of parents

[19] "Eugenics," Holt, 1926, p. 73.
[20] "The Trend of the Race," Harcourt, 1921, p. 247.
[21] "Great Men and How They Are Produced," University of Chicago Press, 1915, p. 10.
[22] "Eugenics," Holt, 1926, p. 72.

who produce eminent children tend to marry late; or perhaps unusual vigor in the parents causes them to have children late in life and helps to give the children the physical vigor which is one of the greatest aids to eminence.'' [23]

More recently there has been a change from positive to negative eugenics, or from an attempt to produce a race of thoroughbreds to the prevention of the birth of the unfit. We are well aware that there is no agreement where unfit stops and fit begins, but it seems reasonable to include under unfit any serious congenital mental or physical defect. The question arises as to how the birth of these abnormals can be prevented. Three methods have been proposed: (1) prevent the marriage of all defectives; (2) place them in institutions; (3) sterilize them. Preventing their marriage would be a safe remedy for some but not for others, since they reproduce as freely without as within the marriage bond. To place all abnormal persons in institutions would be an immense economic burden for one or two generations. Perhaps we have not enough institutions to house one-fourth of this class. It is estimated that we have over 400,000 distinctly feebleminded people in the United States, to say nothing of the other pathological groups. Sterilization is apparently a harmless remedy, but objected to by certain groups. One considers it sacrilegious, believing that everyone has a divine right to produce all the offspring he can regardless of abnormalities. Another thinks that we do not know enough about heredity to know whom or when to sterilize.

(4) HEREDITY OR EVIRONMENT. From the above discussion it is quite evident that we are not sure how much of our superior abilities or mental defectiveness should be accredited to heredity and how much to environment. The author has no desire to magnify one or discredit the other. Without doubt a considerable amount of superior ability is submerged because of lack of opportunity. The fact that people with

[23] ''The Character of Races,'' Scribner, 1924, p. 368.

marked abilities are usually in families which afford opportunities for their children and a wholesome environment, that they come from cities and intellectual communities, and increase as the general opportunities tend to become equalized, all testify to the importance of environment. Yet the statement of Holmes that "you cannot make greatness out of mediocrity or good ability out of inborn dullness by all the aids which environment and education or anything else can possibly offer" [24] remains largely true.

If Davis [25] is correct in his estimate that over fifty per cent of the feeblemindedness is due to non-hereditary causes, and Goddard [26] is correct in assuming that many of the feebleminded can be made useful members of society since they engage in kinds of occupations which normals prefer not to do, then heredity appears not to be such a problem.

Gradually we have acquired more knowledge of heredity and as a result our theories have changed fundamentally during the last few years. It appears that it is now a well-established thesis that what an organism becomes depends upon its heredity and its environment, but that no single accomplishment of the organism depends alone on heredity or environment.[27] "Actually the organism," writes C. M. Child, "is not at any stage a closed system, . . . Reaction to environment is occurring at all stages of development, though of course the kinds and complexity of reaction differ at different stages according to the mechanisms present." [28]

The hereditary material which goes to make up the organism is contained in hundreds of thousands of different kinds of orderly arranged "discrete packets of diverse chemicals

[24] "The Trend of the Race," Harcourt, 1921, p. 116.

[25] Compare Davies, S. P., "Social Control of the Feebleminded," National Committee for Mental Hygiene, 1923, Chapter VI.

[26] Compare Goddard, H. H., "Who Is a Moron?" *Scientific Monthly*, Vol. 24, January, 1927, pp. 41–6.

[27] Compare Jennings, H. S., "Heredity and Environment," *Scientific Monthly*, Vol. 19, September, 1924, pp. 225–38.

[28] "Physiological Foundations of Behavior," Holt, 1924, p. 2.

[genes] imbedded in a less diversified mass of material [chromosome]." [29] The genes are arranged in a double serial order like two strings of beads. Each packet has its respective place corresponding to the packet in the other string, so that the pairs of packets are arranged in sets. When two organisms become parents, each parent contributes to the offspring one set of each of its pairs, thus giving the new organism a full set of complementary genes.

The development of any gens depends upon the interaction of its own substance with those of the cytoplasm, food, oxygen, and other chemicals which are introduced into the cell from the outside. Thus the environment influences the development of the organism, and any change in the environment changes the organism. The corresponding packets of any pair may contain the same chemicals, but more often they contain different but related chemical substances. In biparental inheritance each germ cell contains different combinations of chemicals so each offspring differs from every other. Moreover if one packet is substituted for another the characters of the organism are changed; "different sets give when they develop, even under similar environments, different physical, mental and moral peculiarities. . . when a single one of the packets is exchanged for another, some definite later character is changed. So, changing one packet alters the color of the hair from black to red; or changes the eye color from blue to brown; or makes the organism short instead of tall; or even changes a person from a normal individual to a feeble-minded one; or the reverse." [30]

How many genes it takes to make up any character is difficult to ascertain. Jennings tells us that it takes at least fifty genes working harmoniously to produce the red color of the eye of a fruit fly, and hundreds to produce a normal straight wing. If one gens is changed or altered so that it does not

[29] Jennings, *op. cit.*, p. 226.
[30] *Ibid.*, p. 227.

work in harmony with the other forty-nine then the red color of the eye is not obtained. When we consider that the genes interact in "complex ways," often as a "multiple factor" rather than as a "unit character," that each gens is influenced by the chemical reactions of other genes and the cytoplasm, and each is influenced by the environmental factors, that an alteration or substitution of one gens may not only change the character but the whole body as well, and that it takes hundreds of genes to make a mind—"even a feeble mind"—we understand something of the difficulty of comprehending the working of heredity and environment.

What the hundreds of thousands of genes will produce, then, appears to depend upon what they contain and how they react to the particular environment. Since every individual has many inheritances, what he will become depends upon which one will be developed, and this depends largely upon the environment. "The characters of the adult," declares Jennings, "are no more present in the germ cells than is an automobile in the metallic ores out of which it is ultimately manufactured. To get the complete, normally acting organism, the proper materials are essential; but equally essential is it that they should interact properly with each other and with other things. *And the way they interact and what they produce depends on the conditions.*" [31]

[31] Jennings, *Op. cit.*, p. 230.

CHAPTER V

INFERIORITY AND SUPERIORITY

Causes of backwardness.—It is generally agreed that some races, nations, and groups are more backward in their economic, political, educational, and religious development than other races, nations, and groups. This backwardness is often taken as proof that these peoples have an inferior innate mental capacity. It appears, however, that there may be causes of backwardness other than inferior innate ability.

1. *Isolation.* The question is often asked: Why have the Australian aborigines, the tribes of central Africa, Eskimos, American Indians, and other less backward groups remained so far behind their European brothers in the race for advancement? Isolation rather than innate inferiority appears to be the fundamental cause. Australia, through some early geological catastrophe, was isolated from the other bodies of land. This prevented contacts with other groups; consequently there was little infusion of new ideas, so one group had to run the gamut of progress alone. The African tribes were more progressive than the Australian aborigines due, perhaps, to the fact they were later and less completely separated from other groups. The American Indians were still later separated and consequently more progressive than the other groups named. The Southern Highlanders furnish us a modern example of retardation due to isolation, but they are certainly not an inferior people.

Asia and Europe have been the center of world affairs; subject to continual migration, commerce, and the infusion of new ideas, all of which caused the wonderful civilization of which they boast, to develop. Scientists are generally

agreed that there is a unity of mankind and that isolation is one of the main causes why some groups have remained in such a backward state while others have developed our marvelous civilization.

"In former times," according to von Luschan, "ethnologists used to admire the apparent unity in the direction of the human mind, and to wonder how it was that in all parts of the earth men had similar ideas and ways. Now . . . we are forced to admit the real unity of mankind. Fair and dark races, long- and short-headed, intelligent and primitive, all came from one stock. Favourable circumstances and surroundings, especially a good environment, a favourable geographical position, trade and traffic, caused one group to advance more quickly than another, while some groups have remained in a very primitive state of development." [1]

2. *Unfavorable climate.* Perhaps all of us are aware that climate has considerable effect on the activities of man. People in polar regions may have energy and ambition but the difficulties to be overcome are so great that rapid progress is almost impossible. The people living in Greenland and other similar countries may have natural resources, and means of communication, but within themselves they fail to advance rapidly. It is claimed but not proved that people in the tropics have great imagination but the heat burns out their energy and makes them slothful. Free goods are often abundant and the securing of a living is usually not a very difficult matter; consequently, a slothful temperament and a non-progressive attitude are said to result.

"Damp air and increased pressure," writes Hann, "have the following physiological effects:—nervous depression; quiet sleep; increased elimination of carbon dioxid; slower circulation of the blood. Dry air and decreased pressure on the other hand, have these effects:—nervous excitement; sleep-

[1] Bigham, J. A. (Editor), "Select Discussions of Race Problems," Atlanta University Press, 1916, p. 31.

lessness; quickened pulse; a dim skin and a decreased temperature."[2] "Some of the sluggishness of the tropical races," East thinks, "may be due to the attacks of animal parasites which can ultimately be eradicated. But by no means all of it is attributable to this cause. Continuous heat, day and night, saps the energies and breaks the will. Labor efficiency drops almost to the absolute zero. From three to five men clutter up the ground slowly carrying out tasks easily accomplished by any ordinary individual in the bracing air of the north."[3] Danforth partially refutes the above ideas when he tells us that now "thousands of families in Hawaii, in Australia, India, and many other parts of the tropical world are living not only healthy but active, alert, productive lives, as efficient, if not more efficient, than they would live in cold regions. The benign living conditions of the warm regions, however, permit those who are hereditarily indolent, ignorant or even vicious to live and to multiply who would be killed by the inclemencies and extreme, sudden changes of so-called temperate regions."[4]

"The intensely dark people," writes Taylor, "are all dwellers in hot countries and are all very dolichocephalic or long-headed. In almost every case these dark tribes have lived for untold ages in hot climates and have perhaps hardly varied their climatic environment since their original development somewhere in or near the tropics of the old world."[5] Again, Taylor states that "It is in the tropical jungles and distant islands that we should expect to find the most primitive living races. Not because they originated here, but because they were driven here by past climatic changes and migrations, remained here, and *stagnated here.*"[6]

[2] "Handbook of Climatology," Macmillan, 1903, p. 57.
[3] "Mankind at the Crossroads," Scribner, 1923, p. 118.
[4] "Tropical Life as a Factor in Human Evolution," *Scientific Monthly*, Vol. 25, October, 1927, p. 341.
[5] "Environment and Race," Oxford University Press, 1927, p. 36.
[6] *Ibid.*, 178.

We are sure that to a certain extent climate does affect the occupations of people, partially determining how they shall earn their living. Without doubt the occupations in which people engage influence their thinking, yet the continuous engagement in a certain occupation or living in a certain way, does not prove the innate inferiority of a people.

3. *Lack of natural resources.* Modern civilization requires the use of natural resources such as, coal, iron, fertile soil, and lumber, and any country that does not possess these and cannot secure them cannot make progress economically. Almost every large body of land has an abundance of certain natural resources and a dearth of others, but communication and transportation are so easy today that surpluses are exchanged for necessities. Commerce is so much a part of our civilization that it is difficult for us to imagine what countries like England and Denmark or states like California or South Carolina would be if completely shut off from all other parts of the world.

Communication and transportation have not always been so easy, however, as they are now in and between the leading nations and many parts of the world have suffered and continue to suffer because of a lack of the instruments of progress. Even now a country or locality that lacks natural resources suffers from a loss of its more industrious and progressive citizens while a country which possesses great natural resources attracts the progressive element from other sections and thereby makes more rapid progress.

Judging inferiority and superiority.—Groups of people are like individuals in believing themselves, their culture, and their ways of doing things as being superior to all others. Most of us will admit our limitations to ourselves and to our friends, but we do not want other people, either by word or action, to imply our inferiority. We like to feel that, though we may have certain limitations, we have an abundance of superior points, and we like to impress our superi-

ority upon others. Races and nations are no different; they believe they are superior and resent any implications of inferiority from other races or nations. No doubt this is an old and widespread idea despite contrary views. "It cannot be too greatly stressed," writes Taylor, "that the feeling of superiority which dominates the so-called 'white' races is a growth of the last few centuries. It was certainly not warranted in Pre-Columbian times, and was not entertained by the humble Europeans who first came in contact with the Indian and Chinese empires."[7] Miller[8] thinks the myth of racial inferiority did not exist two hundred years ago. "Only the white man," says Stone, "writes volumes to establish on paper the fact of a superiority which is either self-evident and not in need of demonstration, on the one hand, or is not a fact and is not demonstrable, on the other."[9]

"Belief in their own superiority," according to Oldham, "is natural to all peoples. The theory of a great Nordic race, the source of practically all that deserves the name of civilization, which had for a time a great vogue in Germany and has its exponents in America and Great Britain, is only the elaboration of the ingrained belief of the ordinary man in these countries. As we have already seen, the white man can find support for his confidence in his own superiority in the predominant position which he holds in the world to-day. It is difficult for Anglo-Saxons to realize that other peoples cherish an equally firm and deep-seated belief in their own superiority. Yet this is undoubtedly the case. The Jew has strongly this sense of superiority to other peoples. The Japanese have it equally strong. The Chinese look on themselves as the greatest nation in the world and on their civilization as superior to all others. So deep and unshakable is their

[7] "Environment and Race," Oxford University Press, 1927, p. 7.
[8] Compare "Races, Nations and Classes," Lippincott, 1924, p. 130.
[9] "Is Race Friction between Blacks and Whites in the United States Growing and Inevitable?" *American Journal of Sociology*, Vol. XIII, 1907–8, p. 678.

assurance, that the present backwardness and weakness of their country leave them unperturbed; the future is secure. In his novel, *The Hidden Force*, the Dutch novelist Louis Couperus draws a picture of Java outwardly subject and docile, no match for the rude and energetic trader from the West, yet never subjected in its soul, living in freedom its own mysterious life, divinely certain of the wisdom of its own view of life and, while observing with contemptuous resignation the outward forms of servility and acting as the inferior, silently aware all the time of its own superiority." [10]

This belief in its own superiority on the part of a race, nation, or group, and the inferiority of other races, nations, or groups is inseparably connected with antagonisms and prejudice. Antagonisms are often developed and prejudice acquired through limited group contacts. After prejudice is once acquired it is handed down in the form of traditions, sentiments, and attitudes in early years and tends to color thinking in later years, causing us to search out those things which agree with our beliefs and to reject those which contradict our opinions. Antagonisms arise because of physical appearance, a difference in culture, and economic and political rivalry. Antagonisms and prejudices then become associated with inferiority and superiority complexes. People are then judged inferior or superior without an investigation.

1. *Physical appearance.* Just as the physical appearance of groups has been the basis for classifying races so has it been a basis for judging people to be inferior or superior. Physical appearance is usually very striking, readily calling attention to a difference and setting up an emotional reaction. Although the novel sometimes excites admiration, our preference for the familiar usually causes us to judge the different as being inferior, and the race with marked differences as being an inferior one. Dewey thinks antipathy develops be-

[10] From "Christianity and the Race Problem," by J. H. Oldham. Published by George H. Doran Company; 1924, pp. 66–67.

cause of strangeness. In the early history of this country people were prejudiced against the Irish, but after they became accustomed to this group prejudice was turned against the Italians and other late comers. People on the Pacific Coast were hostile toward the Chinese until the Japanese began to come, then their prejudice became less violent toward the Chinese and more violent toward the Japanese.

The white race has developed its own theory of racial aristocracy, making itself the apex, and judging the colored races as inferior. Because Negroes are black and their ancestors were slaves, the majority of people in the United States continue to believe in the inferiority of the Negro race. Despite the fact that Egypt and China built up wonderful civilizations, and Japan has made more material advancement in the last fifty years than any similarly situated nation in the history of the world, many people hold that these people are inferiors.

We now know there is no necessary connection between physical appearances and innate mentality, and all races appear to be capable of assimilating the highest of culture. "There is no racial bar," asserts Oldham, "which prevents a Negro mind from appropriating the intellectual and spiritual heritage of Europe."[11] "No disparity whatsoever has appeared," writes Goldenweiser, "that would suggest congenital racial differences of superiority or inferiority of sense equipment. . . ."[12] "I have lived amongst the Bantu for nearly thirty years, and I have studied them closely," says Nielsen, "and I have come to the conclusion that there is no Native mind distinct from the common human mind."[13]

Although Keane says of the Chinese: "They seem in some respects to be almost as incapable of progress as the Negroes themselves, the only essential difference being that the arrest

[11] *Op. cit.*, p. 81.
[12] "Early Civilization," Knopf, 1922, p. 8.
[13] "The Black Man's Place in South Africa," (Capetown), 1922, p. 75.

of mental development comes later in life for the yellow than for the black man,'' [14] other authorities are now all but agreed that the Chinese are one of the world's most able races and one of the chief contributors to civilization. Griffith Taylor argues strongly ''for the superiority of the broad-headed peoples living now or lately in the central areas of Asia, the cradle-land of the peoples of the world.'' [15] Certain groups in north China are among the most backward of the human race but to be Chinese is not sufficient data to stamp one as backward or as an inferior. ''To belong to a particular race,'' writes Oldham, ''is not in itself a mark of either superiority or inferiority. No race is preordained by reason of its inferior capacity to occupy as a race a position of permanent subordination. To demand this is to go in the teeth of the facts. When men are judged as men they do not sort themselves out according to race.'' [16]

Some writers have not been satisfied to stop at claiming superiority for the white race, but have manufactured theories of inferiority and superiority for the different groups of the white race, claiming that the mythical Nordic race is superior to the Mediterranean or Alpine groups. Stoddard says: ''Despite the Alpine's many solid virtues, it seems to be the least gifted of the three European stocks.'' [17] While Stoddard and Grant are excited over Nordic superiority, Dixon, Taylor, and Huntington seem to agree that the round, broad-head peoples, such as the south Germans, Rumanians, Turks, and Chinese are equal if not superior to the Nordics. Dixon thinks the seeming superiority of the Nordics is nothing but an accident. Taylor believes that they are a ''specialized upper zone of the Iberian.'' [18] The Alpine group has the highest cephalic index and is apparently farther removed from the

[14] ''Ethnology,'' Cambridge University Press, 1909, p. 322.
[15] ''Environment and Race,'' Oxford University Press, 1927, p. 10.
[16] *Op. cit.*, p. 84.
[17] ''Racial Realities in Europe,'' Scribner, 1924, p. 16.
[18] ''Environment and Race,'' Oxford University Press, 1927, p. 224.

Negro and Negrito groups. "Indeed one result of the study of the distribution of man," writes Taylor, "is to lead the writer to the belief that the so-called 'yellow' or Mongolian type of man is a later product of human evolution than many western members of the so-called 'white' or European type. In other words, the Eastern Asiatic is farther from the primitive anthropoid stock, while the negroid and West-European peoples are earlier, lower offshoots from the line of human evolution." [19]

2. *Culture.* Some writers think that certain races not only do not have the capacity to build up a civilization, but do not possess the ability to assimilate higher culture from other groups. "It makes one pay attention," asserts East, "to the circumstantial evidence of history which gives no indication that the race [Negro] is able to rise. It has never risen above savagery in Africa. In Hayti it has sunk to its original depth even after its contact with French culture. Wherever the negro has been placed he has failed, failed miserably and utterly by the white man's standard." [20]

"A consideration of the characters and cultures of the different races," says Josey, "has given us reason to believe that the maximum good of the world lies in the continued prosperity of the white race. When we look at the process of imitation, we see that it is the white race that is being imitated. This in itself should create a presumption in favor of the superiority of our culture and race. This presumption receives great weight from a consideration of the achievements of the different races. When we compare the achievements of the various races we are forced to put aside something of the modesty of our ethnologists. For does it not seem that the race which has extended its sway over the world, politically, militarily, and industrially, is a superior race? The contributions of other races to the progress of the world are

[19] "Environment and Race," Oxford University Press, 1927, p. 7.
[20] "Mankind at the Crossroads," Scribner, 1923, pp. 137–38.

admitted, but they appear insignificant beside those of the whites. Does not a comparison of the contributions of the various races in art, literature, music, religion, philosophy, and science point to the whites as a superior race? Does not a comparison of the mastery of the various races over nature, that is, of their ability to bend nature to serve their wants and needs, indicate that the white race is a superior one?'' [21]

Goldenweiser agrees that the ''white man's cultural achievement stands supreme, lending at least a *prima facie* justification to his claim of innate superiority. It must, however, be remembered, that in his command of knowledge with its theoretical and practical adjuncts, modern white man is superior not only to the Australian bushman, to the Indian of America, to the African Negro or to the Mongol of Eastern Asia; but in all of these respects he also towers above the ancient Babylonians and Egyptians, the Greeks and the Romans, nay even over our most immediate precursors in the history of Europe. Go back five hundred years and nothing is left of modern civilization; go back two hundred years and some of its most distinctive traits are still absent; go back one hundred years and you find a civilization lacking in most of the things we feel to be of the essence of our own cultural life.'' He continues: ''Knowledge, theoretical and applied, is not the whole of civilization. Now, in art, religion and ethics, or in social and political organization, our superiority over the peoples of antiquity, or even over those of pre-history, is not by any means as definite nor as indisputable.'' [22]

Miller thinks ''since there is slight relation between the originators and possessors of culture, it may often happen that the culture of the dominant race has been secured from the 'inferior' race or culture. Anthropologists think that the

[21] ''Race and National Solidarity,'' Scribner, 1923, p. 224.

[22] Reprinted from ''Early Civilization,'' by A. A. Goldenweiser, by and with permission of, and special arrangement with Alfred A. Knopf, Inc., authorized publishers, 1922, pp. 13–14.

method of working iron, whose use has been perhaps the greatest single asset to the white race, was originated by the Negro in Africa. The Greeks made a contribution to the world's culture which does not correspond to the present status of the Greek people on the culture scale. And Korea, which Japan feels that she must rule because of Korea's backwardness, gave Japan much that is now of highest value to Japan. In the region of the Mediterranean most of European culture was developed. The Nordics after appropriating the contribution repudiate the creators of it.'' [23] Kelsey thinks that until some one is able to point out clearly ''some physical difference which can be shown to have some connection with the degree of culture or the possibility thereof, we have no right to assume that one group of human beings is either superior or inferior to any other.'' [24] Kelsey says that ''some of our best anthropologists tell us that if we give a fixed value to all the various parts of the body and then proceed to measure the various races we shall find one standing about as high as the rest on our ideal scale.'' [25]

Within our own race or group we judge individuals according to their worth. In comparing our race, nation, group, or class with another race, nation, group, or class, we usually use our best and its worst. We often judge a whole race by one individual or a few individuals belonging to that race, usually selecting the worst and considering the worst as typical. In judging the instruments of culture of other races we often use the same fallacious comparisons. Many people argue that certain races are inferior because they have different ideas of morality, of family life, or have different religious beliefs. These ideas are only relative and follow traditions and customs. Because of familiarity we do not criticize our own traditions, customs, and ideas, but look

[23] ''Races, Nations and Classes,'' Lippincott, 1924, p. 138.
[24] ''The Physical Basis of Society,'' Appleton, 1916, p. 292.
[25] *Ibid.*, pp. 192–93.

askance at those of other peoples. We brand other people as inferior because they hold different religious ideas, but a little investigation would show that some of their religious ideas require a higher ethical code than some of ours. We look on other races as being inferior because of different sex codes, forgetting that these people are often more modest, less hypocritical, and often more in accord with biological laws than we. It is often true that certain instruments of culture are more suited to a race in its native environment than to another race in its native environment. Anyway it is unscientific to say a race is innately inferior because its culture differs from the culture of some other race.

3. *Economic status.* Some writers assert that certain peoples are innately inferior because they have not advanced economically so rapidly as other nations. To these writers material wealth means everything. Egypt and China are backward countries from the point of view of economic development, but at one time each led in civilization, giving to the world many advanced ideas. The Chinese and Japanese belong to the same race and the Japanese are certainly not an industrially inefficient people. The Japanese at home and abroad are more efficient than Americans. The prejudice against Japanese in the Pacific coast is due more to their efficiency and thrift than anything else. Americans prefer to deal with Mexicans, a more slothful and less progressive group, or with non-assuming Chinese, than with Japanese, whose fierce determination to get ahead makes competition a serious matter.

Some writers, following Spencer, assert that the so-called lower races lack the determination and capacity for sustained labor. But if one will consider the endurance required in tatooing, the Sun Dance, the filing of teeth to a point, and the tortures endured in increasing the size of the ear lobes and lips, or if one will consider the type of labor and the hours spent at such labor as the "inferior races" follow in

this country he will soon decide that they have more power of endurance than the "superior" groups.

The fact that the whites have seized most of the territory formerly belonging to the colored peoples and are developing it to enrich themselves to the detriment of the colored peoples, is one of the most disturbing factors in the world situation today. Because they have been able to do this, the whites feel that they are superior. The colored groups resent this and occasionally rise to drive out the foreign usurpers. This increases racial prejudice and will probably lead to something more serious in the future. According to Weale "race hatred in Asia is simply the hatred of the 'under-dog' for the powerful animal which stands growling over him."[26]

4. *Political status.* Some writers claim that certain races are innately inferior because they are ruled by the white race or have weak forms of government. They forget that the Babylonians, Egyptians, Greeks, and Romans have all had strong forms of government. Before the revolutions and upheavals in their government, the world trembled when the Chinese dragon gaped, and quaked when the Russian bear shook. Today Japan is one of the powerful nations and causes uneasiness among the leaders of certain white nations.

Racial hatreds and national jealousies are being increased because the white nations have gotten possession of most of the land of the world, are trying to hold it for themselves, and are fiercely determining to make these colored groups accept the rôle of inferiors. English rule in Egypt and India, the rule of France, Italy, and other European countries in Africa, and the rule of the United States in the Philippines try to impress upon the world the idea of white superiority and colored inferiority. Some of these white nations are beginning to realize they have been playing with fire and are searching for an easy way out. Yet we have a group of yellow journalists and pseudo-scientists who agree with Stod-

[26] "The Conflict of Color," Macmillan, 1910, pp. 196–97.

dard in saying that "if the Nordic race will gather itself together in time, shake off the shackles of an inveterate altruism, discard the vain phantom of internationalism, and reassert the pride of race and the right of merit to rule" [27] the world will move along smoothly. But other writers realize that the "ultimate political problem of the world is how the different races which inhabit it may live together in peace and harmony. . . . For better or for worse the various families of mankind have been bound together in a common life, and have to learn how to adjust their relations in this unified world." [28] Miller thinks that "Hundred per cent patriotism and confidence in Nordic superiority are the two most dangerous ideas in the world today, because they lead in exactly the opposite direction from that which civilization must take if it is to survive." [29] "The task of finding a way in which human beings may live contentedly and happily together has become, in consequence of the unification of the world and the increasing complexity of its life, more difficult, and at the same time more urgent, than ever." [30] Yet there is really "no more reason to suppose that differences in the measurement of the skull or in the colour of the skin will of themselves bring about a terrible struggle than that my friend and I are fated to be involved in an implacable blood-feud because his eyes are dark and mine are grey." [31]

5. *Mental measurements.* The problem of racial equality finally resolves itself, then, into the vexed question of supposed mental differences. Members of one race have long passed subjective judgment upon members of another, and have, too often, drawn conclusions tinged with their local prejudices. "When I was going about in China seventeen years ago,"

[27] "The Rising Tide of Color," Scribner, 1920, p. xxx.
[28] Oldham, J. H., "Christianity and the Race Problem," Doran, 1924, p. 5.
[29] "Races, Nations, and Classes," Lippincott, 1924, p. 135.
[30] Oldham, *op. cit.*, pp. 7–8.
[31] *Ibid.*, p. 11.

writes Ross, "to forty-three men who, as educators, missionaries, and diplomats, had had good opportunity to learn the 'feel' of the Chinese mind, I put the question, 'Do you find the intellectual capacity of the yellow race equal to that of the white race?' All but five answered, 'Yes,' and one sinologue of varied experience as missionary, university president, and legation adviser left me gasping with the statement, 'Most of us who have spent twenty-five years or more out here come to feel that the yellow race is the normal human type, while the white race is a "sport." ' "[32]

Before the days of mental testing, when scientists were beginning to seek a more objective means of evaluating mental capabilities, some authorities stressed brain size and weight as showing racial superiority. They failed, however, to discover how much of the brain we use in thinking or with what part or parts we really think. They found that the brain of the Negro male is heavier than the brain of the white female, but they did not wish to admit that a white female was inferior to a Negro male. Then they discovered that some of the heaviest brains showed the least intellect. Bean's painstaking investigation revealed distinctive structural peculiarities of the Negro's brain, but it did not prove a lower intellect.

Goldenweiser says that the "White man's claim to psychophysical superiority receives but little support from a consideration of brain size and weight." He admits that a progressive development in the size and weight of the brain and the whole nervous system has accompanied the physical evolution of the vertebrates, and that with man the brain has developed to unprecedented dimensions. "In proportion to the bulk of his body, man's brain is much larger and heavier than is that of any other animal, including our closest known precursor, the anthropoid ape. And with the increased bulk of the brain, there went an unmistakable rise in intelli-

[32] "Standing Room Only?" Century, 1927, p. 343.

gence."[33] Goldenweiser concludes: "All in all, large people have large brains. But bulk of body is not discernibly related to intelligence." He thinks that it is "not improbable that the brains of a selected group of eminent men when compared with those of a non-selected group of men, would not show any significant differences in size and weight."[34]

The measuring of racial differences has also been attempted through the testing of sensory powers. Rivers and Woodworth have done considerable work in this field. While most of these tests were concerned with the five senses, "two important features of intelligent action" were involved: "quickness in seizing the key to a novel situation, and firmness in limiting activity to the right direction." Although Woodworth noted certain differences, he came to the conclusion that "On the whole, the keenness of the senses seems to be about on a par in the various races of mankind."[35]

Beginning with the twentieth century, mental testing came in vogue and has been growing in popularity among certain groups. The racial superiority enthusiasts readily seized this as a sure means of proving their contentions, but scientific men are not so sure. It is well, however, to note the results of several racial studies in mental abilities as revealed through mental tests.

In 1919–1920 Kimball Young made a study of 12-year-old pupils, using the Army Alpha and a modified Beta. He found for Americans the median I. Q. was 59.21 with the Alpha and 68.88 with the Beta; for Italians 24.92 with the Alpha, and 54.75 with the Beta; for Portuguese 22.0 with the Alpha and 52.03 with the Beta; for Spanish Mexicans 23.67 with the Alpha and 52.96 with the Beta. From this study he concludes that the Latins and other South Europeans are inferior. He also cites similar studies which present

[33] "Early Civilization," Knopf, 1922, p. 4.
[34] *Ibid.*, p. 5.
[35] Woodworth, R. S., "Racial Differences in Mental Traits," *Science* (New Series), Vol. 31, Feb. 4, 1910, p. 177.

evidence showing the Latins are 0.8 of the average intelligence of Americans; that the Italian is inferior to the American and Hebrew; and that Chinese in California show favorable comparison with Americans.[36]

In contrast with the above is a study made of children in the detention rooms at Ellis Island during 1922–1923, and reported by Bertha M. Boody. This is perhaps one of the best studies thus far made, and it has the advantage of having been made before the children became culturally Americanized. Of the twenty-five nationalities actually studied results indicate that "as the study goes on, day after day, the records as far as 'race' is concerned, seem to even themselves." Although there are evidences of marked individual differences, "the curve of the scores seems not to differ in any marked degree from race to race, nor does it differ markedly, with possibly a slight allowance for differences in the strain of examination conditions, from the curves shown in studies of unselected groups of American children." [37]

At present the science of mental testing does not furnish data comparable enough to make adequate comparisons of the median intelligent quotients of the various races. Without doubt it is a great psychological contribution, but it is yet only a child and lacks the experience of maturity. We have to admit that intelligence tests have been only partially worked out for the white race; we do not know how to separate innate mental ability from physical skill in bodily manipulations, from certain temperamental qualities, or from cultural attainment. Only a few things are tested, while many of the emotional responses and racial aptitudes are untouched. Without doubt intelligence testing offers a promising field for development and research, but it is well for us to remember that we are trying to test a natural endow-

[36] Compare "Intelligence Tests of Certain Immigrant Groups," *Scientific Monthly*, Vol. 15, November, 1922, pp. 417–34.

[37] "A Psychological Study of Immigrant Children at Ellis Island," Williams and Wilkins, 1926, pp. 151–52.

ment under artificial conditions and by artificial methods. No two races live under the same conditions; have exactly the same culture; or the same temperamental or emotional responses.

"*There is absolutely nothing in the technique of intelligence tests as applied so far,*" observes Link, "*which warrants any comparison whatsoever between the inherent intelligence of various groups or races. All that we can say is that there is a difference in their scores, and that this difference may be due to any number of factors, of which native endowment is only one.*" [38] While the situation may be somewhat overstated, Link's contention that differences may be due to a number of factors is well taken. In comparing samplings from various races, we are not sure that these samplings are typical of the mental abilities of the entire race or nation, or that the groups tested are comparable as to size or age; the various tests are not yet standardized sufficiently to yield the same results when applied to the same group; the language difficulty remains pertinent although certain tests have been devised to eliminate it; the circumstances surrounding the giving of these tests—emotional excitement prevailing, rapport of tester and testee, etc.—affect the median scores.

As suggested by Boas, "the differences between different types of man are, on the whole, small as compared to the range of variation in each type." [39] The range of individual differences as compared with the range of differences between races is a point around which hinges much of the controversy between the adherents of Nordic superiority and those of racial equality. With Hankins "the only reasonable assumption is that Nordic, Alpine and Mediterranean do differ in inherent intellectual and emotional traits"; [40] while with Goldenweiser, "No proof has been forthcoming of the inferi-

[38] "What is Intelligence?" *The Atlantic Monthly,* Vol. 132, September, 1923, p. 381.
[39] "The Mind of Primitive Man," Macmillan, 1911, p. 94.
[40] "The Racial Basis of Civilization," Knopf, 1926, p. 326.

ority of the other racial stocks to the white."[41] After all, perhaps the "only honest verdict is that, while races presumably do differ in native capacity, how they differ and to what extent we do not know."[42]

From the scientific viewpoint, taking all factors into consideration, then, we have not yet established an acceptable criterion for judging racial inferiority or superiority. This being true, we see no real cause for the emotional outburst of Giddings: "The whole world at present is intellectually muddled and morally bedevilled. It is trying to reconstruct society upon a hypothetical equality of all mankind. If it succeeds, it will destroy historical achievement from the beginning, and will send mankind to perdition."[43]

[41] "Early Civilization," Knopf, 1922, p. 6.
[42] Oldham, J. H., "Christianity and the Race Problem," Doran, 1924, p. 75.
[43] Studies in the Theory of Human Society," Macmillan, 1922, p. 68.

CHAPTER VI

AMALGAMATION OF RACES

PERHAPS no racial question has caused so much acrimonious discussion as amalgamation. Indeed, it underlies practically all racial theories, and is the shibboleth which arouses the deepest venom of race prejudice. It is a subject which is of special interest to students of population problems throughout the world, and in the United States it is a very practical question for students of group interaction and workers in Americanization. Yet there is no racial question which is surrounded by so many unwarranted generalizations and suffers so much from a dearth of scientific data. Most of the writings on this subject which purport to be scientific lack the scientific atmosphere because their authors are so imbued with race prejudice that a scientific investigation is impossible.

Processes of amalgamation.—There are two main processes of amalgamation: (1) Interracial marriage, and (2) Miscegenation. Interracial marriage is the legal form of marriage, and usually obtains where the groups are of the same or near the same color and cultural standing. Miscegenation, on the other hand, is the illegal amalgamation of two or more ethnic groups which usually differ materially in color or culture. From the biological point of view and often from the psychological and social, miscegenation is marriage without legal sanction. It usually obtains by the men of the "superior" group taking the women of the "inferior" group as concubines and thus producing a half-caste group. Racial prejudice keeps the groups from marrying, but it is not strong

enough to prevent the union of the sexes. Consequently, the men of the so-called superiors debauch the women of the so-called inferiors and then abandon their half-caste children to grow up in the inferior environment of the mother. The half-caste at first excites a certain amount of aversion or repulsion, but later tends to remove the social jar between the two opposite groups; and as the number of half-caste increases the social barriers gradually break down and amalgamation becomes so great that the groups tend to form one people.

The extent of amalgamation.—Some writers disregard all historical facts and condemn all racial crossings. Schultz writes:

"Nature prevents the development of the mongrel; in the few cases in which nature has for the time being successfully been outraged and a mongrel produced, nature degrades that mongrel mercilessly and in time stamps it out.

"Nature suffers no mongrel to live."[1]

It is generally agreed by the scholars of the world that such a thing as a pure race does not exist. The nearest approach to a pure race is a few very backward tribes which have been isolated for a few hundred years; but a close examination of these shows that they are mixtures of earlier groups. If we study the Chinese we find they are the descendants of at least two groups. The efficient Japanese represent the blending of three principal groups. The Hebrews claim to be the purest race, but their purity is more in religion than in blood, and even in religion there are several sects. In color and other physical appearance they contain all the variations of the whole human family. Powerful Greece was composed of a union of three distinct groups. Germany is a union of Nordics and Alpines which are the components of earlier groups. England is composed of the blood of the Aborigines, Mediterraneans, Alpines, and Nordics.

[1] "Race or Mongrel," Boston, 1908, p. 4.

Each of these groups is a mixture of earlier groups. In Cornwall, Ireland, the Scotch Highlands, Wales, and other parts of the British Isles, one finds plenty of evidence of the survival of early Mediterranean and other groups. The Nordics, with all their flaunted superiority, according to Dixon, are nothing more than the result of a long process of blending of the older Palæolithic folks with the Caspian and Mediterranean groups during Neolithic times.

The population of the world today appears to be but a mixture of earlier groups. Our present so-called races are all mongrels resulting from the crossing of earlier groups. Pure races are non-existing and the purest of the races have never accomplished anything. The Eskimos, Fuegians, Gypsies and Pygmies are perhaps the purest racial groups we have and they have never produced a civilization worthy of the name. Todd says, "A pure race is the Holy Grail of physical anthropologists. We are all mongrels. America is no more mongrel and no more in danger of becoming so than, say, Italy, Spain, England, France, or any other modern people. Successive inundations of invaders have 'corrupted' their blood and modified their population types; and the process still goes on, less noisily perhaps, but no less surely." [2]

Wherever we go today, we find an amalgamation of the races progressing rapidly. In Europe it is between Nordics and Alpines, Alpines and Mediterraneans, Teutons with Slavs and Latins, and all these various groups with Jews. In China, Japan, Hawaii, Mexico, and elsewhere the amalgamation of Orientals and Occidentals is beginning to gain headway. In Africa the different Teutonic and Latin groups are amalgamating with the numerous native tribes. In the Americas we have representatives of all the so-called races of the earth coming together, amalgamating and forming themselves into one people. As commerce and transportation continue to

[2] "Theories of Social Progress," copyright 1918 by The Macmillan Company, p. 314. Reprinted by permission.

develop we may expect amalgamation to increase in like proportion.

Objections to amalgamation.—History gives us many examples of racial groups seeking to keep themselves "pure" by erecting barriers against other groups. Sometimes these barriers take the nature of immigration laws as exemplified in the United States, Canada, and Australia. At other times a minor group is driven out or so isolated that a very small amount of amalgamation obtains. Many arguments are offered and reasons given for the erection of these barriers, but they all ultimately go back to race prejudice which depends on social consciousness and group pride as their real source. The arguments advanced are of two general kinds—biological and social.

1. *Biological objection.* A number of writers have based their objections to the amalgamation of races upon a belief that the blood differs, and when fused, especially if the racial types are very divergent, causes a disharmonic cross—an unstable individual or group, subject to various kinds of weaknesses, diseases, and degeneracies. Widney [3] maintains that the instability, feuds and unstable governments of Celtic and eastern European peoples are due to their mixed blood. Davenport [4] thinks that racial crossing brings disharmonies which show themselves in instability, dissatisfaction, and restlessness, and lead to mental inefficiency, insanity, and criminality. Mjøen [5] claims that crosses between widely divergent races cause a lower mental and physical level which leads to an increase of disease, prostitution, and criminality; and that although F_1 generation shows an increase in physical development, this in itself indicates weakness.

[3] Compare "Race Life of the Aryan Peoples," Funk, 1907, Vol. I, p. 167.

[4] Compare "The Effects of Race Intermingling," *Proc. Amer. Phil. Soc.*, Vol. 56, 1917, pp. 364–68.

[5] Compare "Harmonic and Disharmonic Race Crossings," *Eugenics in Race and State*, pp. 41–61; also "Harmonic and Unharmonic Crossings," *Eugenics Review*, Vol. 14, 1922, pp. 35–40.

These men, along with many others, apparently overlook the fact that racial types have been crossing, fusing, and amalgamating for thousands of years, and that all the so-called races of today are hybrids—more or less perfect blends of earlier races. How long it takes racial types to blend into a new sub-type apparently no one knows. "Whether ultimately a real blend occurs," writes Gates, "is uncertain, but if it ever does this may be only after a thousand years or so of inter-breeding within the hybrid race."[6] Hooton[7] thinks that many of the so-called races of today are fairly homogeneous blends of older races. Hankins says "that all the important races of man are doubtless of hybrid origin. In the course of the hundreds of thousands of years since the human stem divided into several branches there has been hybridization after hybridization."[8] From the biological point of view there seems to be nothing in the blood, as revealed by tests, even when the racial types are widely divergent, to prevent perfect blending or to cause disharmonies. "The differences between the races of man," write Landsteiner and Miller of the Rockefeller Institute, "were imperceptible by our technique in experiments made up to the present by the comparison of white and American negro bloods."[9]

From almost every quarter of the globe the cross-breed has been condemned and the common belief is that the mongrel inherits the bad qualities of both races and the good qualities of neither. This according to Schultz is a "law of nature." Yet biology teaches us that many of the better plants and animals we have today are the results of hybridization. The

6 "Heredity and Eugenics," Macmillan, 1923, p. 233.

7 Compare "Effects of Race Mixture on Physical Characteristics," *Eugenics in Race and State,* Vol. II, Williams and Wilkins, 1923, pp. 64–74.

8 "The Racial Basis of Civilization," Knopf, 1926, p. 342.

9 "Serological Observations on the Relationship of the Bloods of Man and the Anthropoid Apes, *Science,* Vol. LXI, May 8, 1925, No. 1584, p. 492.

question naturally arises: Why should it be beneficial with plants and animals and detrimental with human beings? "It is nonsense," says Holmes, "to say that the inferiority of the hybrid exemplifies a law of nature. There are abundant plant and animal hybrids that are superior types, and biology affords no *a priori* reason why the hybrids of races and peoples may not be superior also. We can only decide the question by an impartial appeal to the results of race crossing, after making due allowance for the social and other influences which may affect the character of the mixed stock." [10]

"Peru," writes Schultz, "is the country of complete moral, intellectual, and material bankruptcy. The degeneration there is even greater and has been more rapid than in the other South American Countries, and the cause is the infusion of Chinese blood into the veins of the white—negro—Indian compound. There are scarcely any Indo-Europeans of pure blood in Peru, for with the exceptions of pure Indians in the interior, the population consists of mestizos, Zambos, mulattoes, terceroones, quadroons, cholos, musties, fusties, and dusties; crosses between Spaniards and Indians, Spaniards and negroes, Spaniards and yellows; crosses between these people and the cholos, musties, and dusties; crosses between mongrels of one kind and mongrels of the other kind. All kinds of cross-breeds infest the land. The result is incredible rottenness. The so-called whites are narrow-chested, anaemic, lacking in physical vigor and character." [11]

In opposition to the above, Bryce, who is an accurate student, finds that the "fusion of two parent stocks, one more advanced, the other more backward, does not necessarily result in producing a race inferior to the stronger parent or superior to the weaker. The mestizo in Peru is not palpably inferior in intellect to the Spanish colonial of unmixed blood,

[10] "The Trend of the Race," Harcourt, 1921, p. 250.
[11] "Race or Mongrel," (Boston), 1908, p. 157.

but seems to be substantially his equal."[12] De Lacerda tells us the *metis* "are habitually courageous, bold, intelligent, very talkative, and extremely imaginative . . . [they] have given birth down to our own time to poets of no mean inspiration, painters, sculptors, distinguished musicians, magistrates, lawyers, eloquent orators, remarkable writers, medical men, and engineers, who have been unrivalled in their technical skill and professional ability."[13] Bryce says: Some of the most forceful leaders who have figured in the politics of these republics have been mestizos."[14] "In Jamaica, Brazil, South Africa, and elsewhere," writes Reuter, "the hybrid elements form an intellectual, social, and economic aristocracy that has produced the vast majority of the men who have risen to prominence."[15]

The relative fecundity of the hybrid is a question often debated. "The Mulatto," according to Woodruff, "invariably dies out unless new black blood is infused into the mixed race, and though some families survive a few generations, as a rule there is absolute extinction of such feeble offspring."[16] Morris finds that the mulatto "has the weakness and infertility of the hybrid."[17] Elwick finds the mulattoes of Jamaica to be infertile as does Ivan those of Java. The findings of Nott are conflicting. The mulattoes of South Carolina are infertile, while those of Louisiana are very fertile. Quatrefages discovers that mulattoes are very prolific, and Jordan finds them far more fecund than either race. According to Fisher the crosses between Hottentot women and European men are very fecund. Boas writes that "observations

[12] "South America," Macmillan, 1912, p. 481.
[13] Spiller, G. (Editor), "Papers on Inter-Racial Problems," King, 1911, pp. 380–81.
[14] "South America," Macmillan, 1912, p. 477.
[15] "The Hybrid as a Sociological Type," *Pub. of the Amer. Sociol. Society*, Vol. XIX, 1925, p. 63.
[16] "Expansion of Races," (New York), 1909, p. 251.
[17] "The Aryan Race," Griggs (Chicago), 1888, p. 216.

on half-breed Indians show that a type taller than either parental race develops in the mixed blood; that the fertility of the mixed blood is increased; and I can not find any evidence that would corroborate the view, so often expressed, that the hybrid of distinct types tends to degenerate."[18] He found that "the average number of children of five hundred and seventy-seven Indian women and of one hundred and forty-one half-blood women more than forty years old is 5.9 children for the former and 7.9 for the latter. It is instructive to compare the number of children for each woman in the two groups. While about ten per cent of the Indian women have no children, only about 3.5 per cent of the half bloods are childless. The proportionate number of half bloods who have one, two, three, four, or five is smaller than the corresponding number of Indian women, while many more half-blood than full-blood women have had from six to thirteen children."[19] "Whenever we are told," says Kelsey, "that a people of mixed white and Negro blood must perish from earth let us not forget that across Africa in the Sudan and down the East Coast there are untold millions of people of just that descent."[20] According to von Luschan, we have "three chief varieties of mankind—the old Indo-European, the African, and the East-Asiatic, all branching off from the same primitive stock, diverging from each other for thousands, perhaps hundreds of thousands, of years, but all three forming *a complete unity, intermarrying in all directions without the slightest decrease of fertility.*"[21]

Our statistics and studies are yet too inadequate to prove that racial crossing increases or decreases fecundity. Statistics show that when the parents are of different religious

[18] "Race Problems in America," *Science,* New Series, Vol. XXIX, May 28, 1909, p. 847.

[19] "The Half-Blood Indian: An Anthropometric Study," *Popular Science Monthly,* Vol. 45, October, 1894, pp. 761–70.

[20] "The Physical Basis of Society," Appleton, 1916, p. 298.

[21] Spiller, G. (Editor), "Papers on Inter-Racial Problems," King, 1911, p. 17.

beliefs the number of children per family decreases. Are we to infer that there is a biological function to religion that reduces fecundity? If there is a reduction or an increase in fertility when races cross, it must be due to social conditions since there seems to be no biological law to that effect.

The German writers, Ploss and Reibmayer, find that racial crossing generally increases the beauty of the females. The beauty and physical perfection of mulattoes has frequently been a subject for comment. After making an extensive study of the racial crosses in Sweden and reviewing the different studies of racial crosses, Lundborg concludes: "Among more conspicuous and comparatively frequently appearing divergences of the morphological structure of a mixed-race population of this kind (if not always in the first generation, then in the subsequent ones) are to be mentioned an increase of bodily length, a stronger and more graceful body formation than is found in the parental races, a narrower and more elongated face, especially in its upper part."[22] Along this same line Holmes tells us that "E. Fischer, who has devoted an extensive study to the Boer-Hottentot hybrids of South Africa, describes them as of good vitality, fertile and efficient, and presenting no evidence of deterioration. According to Hoffmann the intermixture of native Hawaiian women with full-blooded Chinese has produced a physically and morally superior type, and Dr. Baelz maintains that the Japanese-Caucasian cross-breeds are physically and intellectually the equals of the members of either pure race."[23]

Several efforts have been made to ascertain the mental capacity of racial crosses by using both the brain weight and intelligence tests. Neither of these has been satisfactory. The first, because we do not know any connection between

[22] "Hybrid Types of the Human Race," *Jour. of Heredity*, Vol. 12, 1921, pp. 274–76.

[23] "The Trend of the Race," Harcourt, 1921, p. 252.

brain weight and intelligence and the second, because we have no accurate method of measuring innate ability. Many writers assume that the hybrid is mentally inferior to either parent stock; but when they discuss the Negro, they consider the mulatto to be intellectually superior to the Negro. We have to admit that most of the outstanding Negroes in the United States have been mulattoes, but there are notable exceptions. If the mulatto is superior, it would be hard to explain the superiority from any one viewpoint. The mulattoes produced during slavery were due to peculiar social conditions. They were generally sired by the superiors of the white group. At the same time the mulatto had a better environment than the blacks. The Negro-white crosses being produced today, however, are generally from the lower elements of both races. They, therefore, have a poor heredity and a more vicious environment. "There is crossing of races at all levels," writes Hankins, "but much less of it at the top of a given society than at the bottom. It might well appear that the crosses at the top gave rise to a large proportion of that society's genius while the crossing at the bottom gave rise to much of its degeneracy."[24] Hankins says that neither genius nor degeneracy can be attributed to racial crossing alone. He thinks that if one could assume that "race crossing were accompanied by heterosis, then he could say that such crossing increased the supply of genius and decreased the supply of degenerates. In any case, the argument that race mixture produces degeneracy cannot be sustained on the basis of existing facts."[25]

After studying the half-breeds (Eurasians) in Tokyo for thirty years, Baelz states that "they are on the average well built, and show no tendency to organic diseases more than Europeans or Japanese do. . . . To make quite sure about the intellectual and moral qualities of the (Eurasian), I have

[24] Reprinted from "The Racial Basis of Civilization," by F. H. Hankins, by and with permission of, and special arrangements with Alfred H. Knopf, Inc., authorized publishers, 1926, pp. 338–39.

[25] *Ibid.*, p. 339.

asked the opinion of the man who is more than any other qualified to give an authoritative judgment—Mr. Heinrich, director of the School of the Morning Star. He has had in his classes side by side, Europeans, Japanese, and almost all the male half-breeds in Tokyo. His opinion is, that if properly brought up and well-looked after, the half-breeds are morally, and intellectually, in no way inferior to the children of both races. As a rule they are taller and more robust than the Japanese, and in every branch of learning they are fully up to the standard of their fellow-scholars.'' [26]

Some writers favor intermarriage between related stocks but think that amalgamation should not take place between distinctly related stocks. They believe that through long periods of comparative isolation the different racial groups have developed their own peculiar temperaments and that a crossing between these would produce unstable individuals with inharmonious constitutions and ''incongruous hereditary tendencies.'' But the mule, as Holmes points out, ''is a very valuable animal with an unusually efficient organization notwithstanding the marked differences of the horse and the ass.'' [27] It may be that groups are sometimes too much alike in temperament. The too homogeneous population of China is given as one of the causes of her apparent stagnation. ''The hybridization of extremes,'' East and Jones say, ''is undesirable because of the improbability of regaining the merits of the originals, yet the hybridization of somewhat nearly related races is almost a prerequisite to rapid progress, for from such hybridization comes that moderate amount of variability which presents the possibility of the superindividual, the genius.'' [28] Thorndike thinks there is much overlapping between races ''and the differences in original nature within the same race are, except in extreme cases,

[26] Lawton, L., ''The Empires of the East,'' Small, 1912, Vol. II, pp. 772–73.
[27] ''The Trend of the Race,'' Harcourt, 1921, p. 251.
[28] ''Inbreeding and Outbreeding,'' Lippincott, 1919, p. 263.

many times as great as the differences between races as wholes." [29]

Several writers are somewhat alarmed over the amalgamation of the different racial elements in the United States. Conklin thinks, however, that it is "not the mixture of the blood of different European races in this country that should cause concern, but rather the amalgamation of superior hereditary types with those of inferior physical, mental, and social traits, from whatever country or race they may have come." [30] After making an extensive study of the old American stock and prophesying what the effects of the amalgamating of the new immigrants with the old stock would be, Professor Aleš Hrdlička adds: "And it may well be expected to be a wholesome and effective type, for mixtures such as those from which it shall have resulted are, so far as scientific research shows, not harmful but rather beneficial, . . ." [31]

Biology gives us several theories of heredity, but so far these have not been scientifically applied to the human species, and no conclusive scientific study has yet been made of social fusion. If each human being is composed of thousands of hereditary units and these are transmitted in compact blocks, then Carr-Saunders' objection to crosses between the more distantly related human species because each species "has a series of character complexes, built up through ages of selection and compatible with one another, and by crossing such complexes are broken apart" [32] is legitimate. But this theory is not yet established. "Only experience can determine," writes Conklin, "whether a certain cross will yield inferior or superior types." [33]

[29] "Educational Psychology," Columbia University Press, 1914, Vol. III, p. 224.
[30] "Some Biological Aspects of Immigration," *Scribner's*, Vol. 69, March, 1921, p. 358.
[31] "The Old Americans," Williams and Wilkins, 1925, p. 412.
[32] "The Population Problem," Oxford University Press, 1922, p. 380.
[33] "Heredity and Environment," Princeton University Press, Fifth Edition, Revised 1923, p. 434.

Only the chemist can tell, and not always the chemist,
What will result from compounding
Fluids or solids
And who can tell
How men and women will interact
On each other, or what children will result?
There were Benjamin Pantier and his wife,
Good in themselves, but evil towards each other;
He oxygen, she hydrogen,
Their son, a devasting fire.[34]

It would appear that the more distantly related the groups are the greater the possibility for variability, and Oldham thinks, "This is an advantage. There is always the possibility of new favourable combinations arising. The leading nations of the world are all sprung from an intermingling of different stocks." [35] Dixon [36] makes a very thorough study of the spread of racial types, and attributes the greatness of the Chaldeans, Egyptians, Greeks, Romans, and others, mainly to the amalgamation of different racial groups. Weatherly, on the other hand, thinks, "We may even question whether, in some of the instances where marked temporary success has followed, mingling of stocks may not have been the reason for that instability which has made some civilizations so tragically brief in duration. It is often pointed out that the great culture peoples have usually begun their careers with a relatively pure stock and have then assimilated other stocks through conquest or immigration. Such mergings have often been followed by periods of brilliant achievement, which have soon given place to lassitude and decay. In any case it cannot be proved that if the comparatively unmixed stock had so continued it might not have had a slower but more stable

[34] Masters, E. L., "Spoon River Anthology," p. 16. Quoted by Harold Wright, "Population," Harcourt, 1923, p. 158.
[35] "Christianity and the Race Problem," Doran, 1924, p. 145.
[36] "The Racial History of Man," *passim*, Scribner, 1923.

progress, perhaps missing the dramatically brilliant era of efflorescence, but missing also the debâcle.'' [37]

2. *Social objections.* From the biological point of view no law seems to have yet been established which would condemn racial crosses, regardless of how divergent the species may be, if the stocks are not degenerate. From the social point of view, on the other hand, there are a number of objections. The objections raised depend upon the intensity of the desire a group may have to remain ''pure,'' and this, in turn, depends upon the degree of racial pride and racial prejudice of the particular group. The social distance measures the unwillingness of a group to enter into interracial marriage, and varies with several facts:

(1) IT VARIES WITH GROUP CONSCIOUSNESS. Group distinctions are the outgrowth of group consciousness, and without this no group pride or group prejudice can exist. If a group has no racial pride, racial prejudice, or group consciousness there is no objection to amalgamation, but when that group begins to develop pride, objections to amalgamation also develop. Slavery in the United States broke the spirit of the Negroes and taught them they were an inferior group. During slavery they had no sexual rights and after emancipation they had no group consciousness and little objection to amalgamation. In fact, the Negro girls in most cases seem to have felt that they were being honored by the white men. But today they are rapidly developing group consciousness and their leaders are very outspoken against amalgamation. The Negroes, however, do not appear to object to amalgamation so much on the basis of interracial marriage as they do to the illegal process which brings about this racial mixture. The laws and social pressure in the United States and Africa prevent Negro-white marriage, and it is the debauchery, bastardization, and stigmatization of their people that the Negro leaders object to rather than legal marriage.

[37] ''Social Progress,'' Lippincott, 1926, p. 11.

(2) IT VARIES WITH COLOR. It is much easier for people of the same color to break down the social objections and to intermarry than for the people of different colors. The various groups in Europe will intermarry more readily with each other than they will with Africans, Hindus, Japanese or Chinese. Japanese more readily marry Chinese than they do Negroes or Europeans.

Nations that have long had a variety of races and colors in their population do not oppose marriages which cross the color line with the same intensity as nations do that are more homogeneous. It is much easier for a Frenchman to marry an African than for a German. France has considerable Negro blood mixed with her Mediterranean and Alpine bloods; consequently there is very little objection to intermarriage with the black race. As there is very litle objection to a French woman or man marrying a Negro, the individual does not lose cast by so doing, and the children are not regarded as being half-caste. According to *The Mercure de France,* France would be greatly benefited by the infusion of African blood. But in Germany Ploetz established a Society for the ennobling of the race. Interbreeding of the races was to be prevented by depriving the descendants of mixed marriages of civil rights. In the United States the situation is different. The Negro here occupied a different status from that which he did in France, and the amalgamation process has not continued long enough for the objections to intermarriage to pass away. In the United States very few marriages take place between whites and blacks or between white Americans and Asiatics even in those states where such marriages are legal. Social pressure is so strong that those who make the venture are speedily declassed by their groups and their children have to bear an unusually heavy social burden.

While amalgamation between whites and blacks in the United States and Africa is not taking place to any great extent by interracial marriage, it is taking place to a great

extent by miscegenation. This is due to the fact, as Arthur Keith [38] points out that society can place and enforce bans on intermarriage, but the sex impulse belongs to individual men and women and refuses to be controlled. It is remarkable that white men who are the most violent opponents of Negro-white marriage are often themselves the keepers of Negro mistresses or the fathers of mulatto children. This practice in the United States began in slavery and although decreasing is found in sections of the South today. According to the following quotation, the same condition is true in Africa. "Race-hatred has played a terribly divisive part in the opening up of Africa, but it has never prevented White men from cohabiting with Black women . . . it comes as a surprise to discover that among those who are unashamed of the cohabitation of White man with Native women there are thousands who are enraged at the suggestion of marriage between the two. Evidently it is not the physical fact of marriage which is banned, but something involved in the legalization of the union." [39]

(3) IT VARIES WITH RELIGION. Religion is another bar that prevents intermarriage. Religion more than any other factor has prevented Jews from marrying Gentiles. So long as Jews hold to their religion there is very little intermarriage with Gentiles; but in countries like the United States and Germany, where there is a breaking down of the Jewish faith, intermarriage is frequent. Statistics show that before the World War and the spirit of anti-Semitism half of the marriages of Jews in some cities in Germany were with Gentiles. Drachsler's study of "Intermarriage in New York City" [40] shows a 300 per cent increase of intermarriage of Jews for the second generation in New York City.

[38] Compare "Nationality and Race," Milford, 1919, p. 13.

[39] Willoughby, W. C., "Race Problems in the New Africa," Oxford University Press, 1923, pp. 245–46.

[40] Columbia University, *Studies in History, Economics and Public Law*, Vol. 94, 1921, pp. 153–356.

In India religion has prevented intermarriage between Hindus and Mohammedans, but European influences are breaking down this barrier and intermarriages are beginning to take place. Catholics usually marry Catholics and Protestants marry Protestants. In Switzerland, and elsewhere in Europe, Protestants and Catholics live side by side generation after generation with very little intermarriage, especially if one religious group is French and the other German. In the United States we largely de-church our immigrants and intermarriages take place more freely.

(4) IT VARIES WITH ECONOMIC AND EDUCATIONAL STATUS. Peoples of the same economic or educational planes intermarry more freely than they do with groups of a lower or higher plane. There is some difference, however, when the color or religious bans are considered. For example, it is much easier for a wealthy Negro man to marry a poor white woman than it is for him to marry a wealthy white woman. And it is easier for a wealthy Jew to marry a poor Gentile woman than it is for him to marry a Gentile of his own economic standing.

It is commonly asserted that amalgamation takes place at the extremes. It is true that the wealthiest of the inferior group often marry the poor of the superior when there are color or religious bans to be broken. Wealthy Negroes do not marry wealthy whites, nor wealthy Jews wealthy Gentiles. Intermarriage seems to be more common among the middle class or lower middle class than among the wealthy or extremely poor classes. Drachsler, in his study of New York City, found that over "two-thirds of the intermarriages among men and over 60 per cent among women take place in the higher economic classes.

"The largest proportion of the intermarriages takes place among persons on the middle or mediocre culture plane rather than on the high or low culture level. Thus, three-fourths of the men who intermarry are found in the occupation groups corresponding to the middle level, namely in commerce and

trade, in manufacturing and mechanical pursuits and in personal and domestic service, while only about 10 per cent are professional men and about 12 per cent unskilled workers. The same is true of the women who intermarry, almost 87 per cent of them being found in the middle occupation and culture groups.''[41]

The social position of the hybrid.—A very undesirable feature connected with amalgamation is the social position in which the racial cross is placed. Almost everywhere the Anglo-Saxon has gone, he has carried with him his feeling of superiority. Seldom has he refused to engage in the process of amalgamation by miscegenation, but usually he has frowned upon interracial marriage and proceeded to treat his bastard children as belonging to the ''inferior'' racial types with which he has mingled.

(1) The environment of the hybrid, therefore, is not generally conducive to wholesome family life. Usually amalgamation takes place under the worst conceivable conditions; and as a result the offspring are placed at many disadvantages. ''The product of race mixture,'' says Holmes, ''is very frequently a person of unsettled social status. He is more or less alienated from both races from which he sprang. His associations are only too frequently with the worst elements of the more cultivated stock. The family environment and traditions under which he is brought up are often less favorable than they are for the offspring of either pure race.''[42]

In discussing the social drawbacks of the hybrid, Todd points out that the chief ''trouble with the half-breed or any other racial mixture is not racial but societal, not physiological but sociological. The half-breed in South Africa or in Australia or in our own Southern States may fail. But he fails not because he is by heredity weak and degenerate; his weak-

[41] Columbia University, *Studies in History, Economics and Public Law*, Vol. 94, 1921, p. 220.

[42] ''The Trend of the Race,'' Harcourt, 1921, p. 248.

nesses and vices come from his isolation, from the contempt and suspicion, the social disapproval showered upon him. He is a citizen of No Man's Land, a man without a country, without a just share in the social heredity which falls to normal persons; he becomes a pariah, a moral and economic derelict." [43]

Despite all the social pressure and other disadvantages, some hybrid children are the recipients of family devotion. Willoughby, writing of the crosses between blacks and whites in Africa, says, "Most of us have met undesirable specimens of this breed; but we have remembered that they never had a chance. Born of a vicious father, or a father who had not enough will of his own to be vicious, deserted by him when he tired of their mother, and spurned by his race, they grew up as best they could in their mother's native village, or in some location where she drifted to find a living without parting from the excitements and luxuries of civilization. On the other hand, we have met children of White men who married Black women, either by Native or European custom, and who continued to live with them honorably and to lavish as much love and care upon their little ones as a hen can upon a brood of ducklings; and one notes with gladness that many of these children have made good. There are instances, indeed, in which the children of White fathers and Black mothers, born under more fortunate conditions, have done remarkably well, winning the respect of all who know them." [44]

(2) The hybrid, although handicapped, has achieved prominence in many places. Finch cites a number of instances in which the hybrid has gained unusual distinction. "It is extremely difficult," he says, "for the mixed class to demonstrate their cultural worth because of the deplorable conditions under which the mixed populations come into existence. Most race crossing has occurred on the outskirts of civilization,

[43] "Theories of Social Progress," copyright 1918, by The Macmillan Company, p. 316. Reprinted by permission.

[44] "Race Problems in the New Africa," Oxford University Press, 1923, p. 247.

and the half-breeds, despised by one race and despising the other, have been outcast from society. The victims of prejudice and social ostracism are certain to display some bad qualities; yet, despite these untoward circumstances, there is a large body of evidence of the superior energy and mental vigor produced by the race crossing. The greater number of negroes who have achieved distinction in the United States have been men of mixed blood. Many of the purer type have manifested remarkable intellectual power, yet it is probably more than a coincidence that Douglas, Washington, and DuBois, who have attained the height of group leadership, have been mulattoes; superior, moreover, to both the white and blacks in their ancestry. The mulattoes of Haiti form a large percentage of the aristocracy, and are very prominent in commerce, in the professions, and in State affairs. The coloured people of Jamaica constitute a majority of those engaged in the trades and professions. Sir Sidney Olivier considers that this class of mixed race is indispensable to any West Indian community, because it saves the community from the cleavage between white and black, and helps to form an organic whole. Quatrefages believed that the half-breed of the negro and European, when placed under normal conditions, justifies the words of the old traveller, Thevenot: 'The mulatto can do all that the white man can do; his intelligence is equal to ours'.'' [45]

According to Todd, ''Many of the most distinguished men, particularly men of letters, in recent times are racial complexes. Poe, Whitman, Lowell, Bret Harte, Mark Twain, Longfellow, Lafcadio Hearn, Edison, in America; Tennyson, Swinburne, Rossetti, Browning, Romilly, Lewes, Millais and Disraeli, in England; Sainte-Beuve, Dumas, Taine, de Maistre, Montalembert, Mérimée, Hugo, in France; Kant in Germany; Pushkin, Lhermontoff, von Vizine in Russia; Ibsen

[45] Spiller, G. (Editor), ''Papers on Inter-Racial Problems,'' King, 1911, pp. 110–11.

in Norway—are types of such mixtures. . . . And so the list might go on indefinitely. Theoretically this is just what we might expect, for two reasons: (1) the mixture increases the possible combinations of traits, hence greater, more complex adjustments to environment; (2) superior mental ability according to modern genetics is 'dominant' in a mixture; therefore the mixture represents a leveling up, not down." [46]

The amalgamated population type.—In general, if racial crosses produce outstanding individuals, and these usually under an inferior social environment, then the amalgamation of population types in a country should produce a superior population.

"After the major differences in speech, religion, and customs between intermixed population elements have been planed away, intermarriage," according to Ross, "takes place freely and the original diversity disappears. The offspring of these mixed unions reconcile in their persons the opposed tendencies. Inheriting from their two parents distinct traditions they adopt the superior, combine the best elements of both, or else discover an independent standing ground for themselves. Thus vanished the historical oppositions of Israelites and Canaanites, patricians and plebeians, Romans and Goths, Gauls and Franks, English and Danes, Normans and English. Amalgamation is, then, the *end term* of the process of adaptation." [47]

According to G. Stanley Hall the amalgamation of the Ainos, who "are a very different and more primitive type," with the Japanese has been beneficial to both groups; the several centuries of intermarrying between Dutch and Portuguese in India has been "to the advantage of both"; the crossing of North Africans with Arabs has produced the Moors; many crossings have produced the Turks. The mix-

[46] Todd, A. J., "Theories of Social Progress," copyright 1918 by The Macmillan Company, pp. 315–16. Reprinted by permission.
[47] "Principles of Sociology," Century, 1920, pp. 234–35.

ture of Indian and Spaniards in Mexico and South America, especially Chile "shows how favorably the crossing of races may act if differences are not great and if both sexes of both races marry with each other instead of only the men of one with the women of the other." [48]

After studying the three centuries of race-building that has gone on in America, Pearl says, "It seems to me, looking at the matter as a biologist, that a real, distinct, unique *American* people has evolved in the course of the experiment and is still continuing to evolve. Further, as people go, it is not a bad lot. Its most interesting and valuable feature is that it is still changing and evolving. I can find no manner of bitter feeling or even regret that the pure English-Scotch-Welsh stock of the original settlers will eventually not be the dominant element in the complex of American germplasms that it has been in the past, though personally I am wholly of that stock, and am for three centuries, an American."

"The kind of people," he continues, "who will survive and run the affairs of the country, say a couple of centuries hence, when population pressure will be intense, will, I think, not be Englishmen, or Slavs, or Jews, or Italians, but *Americans*, of that type which has shown the greatest adaptability to the problems which life in this part of North America has presented. I think they will probably be just as gentle, as high-minded, as clever, as honorable, and as independent as any people on the face of the earth." [49]

Todd appears to regard our racial crossing in America with a great deal of optimism also. He thinks that "instead of being afraid of such [racial] mixtures, we should seek them, having granted aliens the right to move about freely and to take up residence among us. The real danger is that amalga-

[48] "Adolescence," Vol. II, Appleton, 1904, p. 723.
[49] "Studies in Human Biology," Williams and Wilkins, 1924, pp. 249–50.

mation may not take place, and that we may be faced in the near future with 'pools' of immigrants, or distinct resistant nodules of aliens which defy any sort of amalgamation. So far there are no evidences of degeneration in this country as a result of race-crossings, unless a lowered birth rate be called degeneracy. Such anthropological measurements as have been secured for the second generation of school children born of mixed parentage show higher weight, chest measurements, etc., than the general average of pure American stocks. The third generation reaches a still higher average.'' [50]

Amalgamation has evidently been in progress for a long time and has increased with communication and will continue to increase as the means of transportation and communication increase. It appears to be beneficial rather than detrimental from the biological point of view. From the social point of view it is frowned upon by many groups at first and the children are often placed in an unhappy environment; but after the initial period is passed, the population types amalgamate with little friction. Some writers think that as the human family was probably of one color and kind in the beginning, so it will probably become in the end. This, however, remains to be proved, and several writers for different reasons think it is not to be desired.

[50] Todd, A. J., ''Theories of Social Progress,'' copyright by The Macmillan Company, p. 314. Reprinted by permission.

CHAPTER VII

THE DYSGENIC EFFECTS OF WAR AND RELIGION ON POPULATION

The effects of war on population.—Perhaps war has the most far-reaching effects, certainly the most dysgenic effects, of any activity in which men engage. War, we may say, affects population in three ways: 1. Reduction in numbers; 2. Economic loss; and 3. Race degeneracy.

1. *Reduction in numbers.* Something has already been said of the effects of war on population from the standpoint of quantity. It is estimated that from the dawn of history to the middle of the nineteenth century 6,860,000,000 soldiers were killed on the battlefields, and that 4,449,300,000 were killed in wars between 1790 and 1913. The World War removed another mere 40,000,000 from our midst. The Danish Research Society estimates the loss of life in the World War to be as follows:

	Decrease in Birth Rate	*Loss through Increase of Death Rate*	*Among those Killed in War*
Russia and Poland	20,250,000	15,130,000	9,829,000
Europe	8,000,000	4,700,000	2,500,000
Germany	3,600,000	2,700,000	2,000,000
Austria–Hungary	3,800,000	2,000,000	1,500,000
Great Britain and Ireland	850,000	1,000,000	800,000
France	1,500,000	1,840,000	1,400,000
Belgium	175,000	400,000	115,000
Italy	1,400,000	880,000	600,000
Bulgaria	155,000	130,000	65,000
Rumania	150,000	360,000	159,000
Servia	320,000	1,330,000	690,000

Doctor Burgdörfer, writing in the Munich Medical Journal tells us that as a result of the World War on Germany, 800,000 marriages were not made, 4,000,000 children were not born, 1,600,000 military persons died, and 700,000 civilians perished because of the food blockade. According to M. Lucien March, France lost 1,400,000 of her citizens in the prime of life, 800,000 more were hopelessly incapacitated, and the birth deficit was 400,000. All told, France lost over 2,000,000. It is impossible for the human mind to grasp the vast figures used in war calculations. Smaller numbers would make a deeper impression on most of us. We were shocked at the loss of a thousand lives when the *Lusitania* was sunk, but to destroy as many people as were killed in the World War we would have to sink a *Lusitania* every day for 70 years. According to Kirby Page we averaged 16,585 daily for the 1,567 days of the war. "Man still breeds so fast," writes Pearl, "that at all too frequent intervals he resorts to force to determine whether his or some other particular kind of people are going to enjoy the pleasures of continued existence."[1]

Wars always affect the birth rates and sometimes the marriage rates. The decrease in births during the war down to the end of 1917 is said to have been "500,000 in the United Kingdom; 1,100,000 in Austria; 1,500,000 in Hungary; 2,600,000 in Germany; 833,000 in the uninvaded districts of France."[2] In Lille, which is the largest city in the occupied region of France, there was a 47 per cent decrease in births and a 45 per cent increase in deaths over the normal pre-war rate. The population of the city of Orel, Russia, decreased 33,400 between 1913 and 1920. The excess of births over deaths in England and Wales dropped from 385,798 in 1912 to 50,782 in 1918. Yet the figures for 1918 represent a rate of increase almost double that which obtained during the eighteenth century.

[1] "Studies in Human Biology," Williams and Wilkins, 1924, p. 247.
[2] Bogart, E. L., "Direct and Indirect Cost of the Great World War," Oxford University Press, 1919, p. 283.

Another unfortunate thing about war is the creation of an unequal distribution of the sexes. This creates problems in immorality and is dysgenic because the "superiors" are the ones most unlikely to marry. At the present time London is said to have 341,000 more women than men; the female excess in Russia is around 9,488,000. According to Rossiter[3] the excess of females in Europe in 1910–1911 was as follows:

Russia (including Poland)	1,344,400
Great Britain	1,328,625
Germany	841,800
Austria–Hungary	699,711
France	634,000
Italy	627,997
Belgium	62,206
	5,538,739
Plus 12,000,000 males killed in war	12,000,000
Total excess of females in Europe	17,538,739

2. *Economic loss.* War is a very expensive business and causes extra burdens to be borne by those striving for economic security. All wars between 1793 and 1910 are estimated to have cost $23,000,000,000. Novicow, writing in 1911, says: "Since 1648 war has cost the European nations alone $80,000,000,000. It would not be exaggerating to say that in the entire historic period war has cost at least ten times that amount. Then, at the very lowest estimate, war has cost in all $800,000,000,000."[4] It has been estimated that the World War cost $186,000,000,000, but according to the publication of the World Peace Foundation the world took on a financial handicap of $350,000,000,000 since 1914. The Paris *Matin* states that the World War cost France $63,000,000,000. Fisk says that "During the four decades which elapsed between the Franco-Prussian War and the Great War, the nations of Europe expended forty and a half billion dollars, gold, upon

[3] Compare the "Influence of War Upon the Population," *North American Review*, Vol. 203, 1916, p. 708.

[4] "War and Its Alleged Benefits," Holt, 1911, p. 34.

their military and naval establishments;—an average of ten billion dollars a decade, a billion a year.''[5] It is interesting to note that during these forty years Germany spent less on her army and navy than did either France, Great Britain, or Russia.

If we try to reduce the direct cost of the World War, which includes only a small per cent of the ultimate cost, to comprehensible figures, we find it to be $240,000,000 every twenty-four hours or $10,000,000 every hour; enough to build ten high schools costing $1,000,000 each, according to Will Irwin; and $9,000,000 every hour, a total cost of $20,000 every hour since the birth of Jesus, according to Kirby Page.

The United States has been what may be classed as a peaceful nation and has spent very little in wars in comparison with Europe. For that reason, if nothing else, we should try to get some idea of what war has cost us. The following is an estimate of the Danish Research Society:

	1870–1919, Including Spanish–American and World Wars, 50 Years	*1870–1916, Omitting Spanish–American and World Wars, 47 Years*
Army	$19,334,031,000	$3,956,346,000
Navy	6,229,612,000	2,594,530,000
Pensions	5,469,874,000	4,906,803,000
Interest	3,294,001,000	2,455,868,000
	$34,327,578,000— 76.4	$13,913,544,000— 71.5
All other purposes	10,672,148,000— 23.6	5,543,727,000— 28.5
Total	$44,937,065,000—100.0	$19,457,271,000—100.0

Irwin estimates that the Revolutionary War cost us 170 million dollars; War of 1812, 119 million; Mexican War, 173 million; Civil War, 3,478 million; Spanish-American War, 1,902 million; and World War, 22,625 million. In 1909–1910

[5] ''French Public Finance,'' issued by the Bankers Trust Company, 1922, p. 1.

we appropriated 279 millions of dollars for war; 828 millions for 1920–1921; and 1,379 millions for 1921–1922. A statement by the Department of Interior reveals that we have paid out $6,836,000,000 in pensions for wars we have had since 1790. The Revolutionary War pensions have totaled $70,000,000; War of 1812, $46,000,000; Mexican War, $56,000,000; Civil War, $6,427,000,000; Spanish-American War, $126,000,000. The bonus system of the World War will perhaps cost $20,000,000,000. Yet we beat drums, wave flags, shout for war, and curse about our taxes. Why? Perhaps, because we have a sixth-grade education. Why build sixteen battleships, the cost of each of which would build two or three large state universities, while our educational system stagnates because of lack of funds?

These things are bad indeed and many more could be charged to wars, especially the last war, because it was more far reaching in its circumference than any previous war. Some claim that as a result of the World War there was an increase of lawlessness, immorality, prejudice, and deceit; that people lost respect for truth and government; that a moratorium was declared on freedom of speech and as a result "the peoples of the earth were fed upon lies, half-truths, and misrepresentations."[6] Page says: "Every government systematically deceived its own people. A rigid censorship prevailed everywhere. False reports concerning victories and defeats were constantly issued. Stories of atrocities committed by the enemy were grossly exaggerated or manufactured outright in some propaganda office."[7]

3. *Race degeneracy.* All these things, bad as they are, are only contributory to the one big, supposedly harmful, result of the whole modern war process, which is race degeneracy. "The really serious burdens of the war," writes Bogart, "cannot be reduced to statistics or presented in tabular form. Mater-

[6] Compare Irwin, W., "The Next War," Dutton, 1921, p. 101.
[7] "War, Its Cause, Consequences, and Cure," Doran, 1923, p. 98.

ial resources can be replaced in a comparatively short space of time, but the immaterial intangible losses and burdens may persist for generations." Bogart thinks that because "the loss of life was so enormous in the World War, amounting to about 13,000,000 for soldiers and as many more for civilians, there is every reason to expect a serious lowering of racial vitality and of personal vigor throughout the major part of Europe." [8]

War is the most dysgenic pastime that nations engage in and leaves its marks on future generations. Some people used to write on the benefit of war, and a few yet claim that it is beneficial. If the alleged benefits claimed for war, such as the bringing out of inventions, the breaking down of customs and traditions (so what Professor Blackmar calls "Mutations of Progress" can be realized), the fusions of cultures, racial amalgamation, and what not, can be accomplished by peace instead of war, and without doubt they can, the dysgenic process is prevented.

It is generally agreed that wars among preliterate tribes had eugenic significance. Their method of fighting tended to eliminate the weaker members, but civilization has reversed the process and made war dysgenic. "Early hand-to-hand combat," concludes Ross, "was a searching test of quality and favored the survival of the bravest, strongest and most adroit. Modern war, however, calls into the danger zone the pick of the young men, leaving the physical and mental culls to stay at home and propagate. Now that we destroy our enemies by lethal machinery, battle no longer spares unusual prowess as it often did in the days of individual combat, but mows men down indiscriminately. Beyond all question the World War caused a vaster destruction of the superior and entails a graver decline in innate human quality than any happening in all previous history of man." [9]

[8] "War Costs and their Financing," Appleton, 1921, p. 418.
[9] "Principles of Sociology," Century, 1920, pp. 386–87.

"The War System," writes Jordan, "consists of three main elements of organization—the Standing Army, Conscription, and finally War itself, toward which the other two converge. In each of the three branches, it stands opposed, on the whole, to the eugenic welfare of the nation, as Benjamin Franklin was the first to observe. To begin with, all armies are chosen by selection. They are made up of young men between the ages of seventeen and thirty-five, without blemish so far as may be, men of physical strength and soldierly bearing, having by preference the qualities of courage, dash, and initiative. The feeble, the loose-jointed, the weak-minded, the adenoid, the intemperate, the diseased are left at home."[10] Novicow points out that if a "young man has the least physical defect, even so slight a thing as bad teeth or poor sight, they reject him. The very flower of each generation are chosen for the butcheries."[11] He sums up his discussion by saying that "war is a selection for the worse, which destroys the more cultivated and leaves the more barbarous. It has always held back mental progress, and at this very day it increases mental stagnation. So I do not see how it can 'ennoble' our kind by preventing us from 'falling into dangerous lethargy'."[12]

The above shows that war requires the physically perfect; the following indicates more specifically the effects on the race as a whole. "War selects men to die," writes Todd, "not to live and radiate or propagate virility and valor. Or it marks them for slow consuming by disease or habitual idleness or debauchery. Recall the German proverb, that every war leaves behind it three armies, an army of heroes, an army of cripples, and an army of thieves. We might add another, the army of slaves. And slavery always reacts as a selective agency for the inferior elements in a population. In Rome, where long-continued wars had begotten the habit of dependence upon war captives for labor power, breeding of slaves

[10] "War and the Breed," Beacon Press, 1915, p. 337.
[11] "War and Its Alleged Benefits," Holt, 1911, p. 23.
[12] *Ibid.*, p. 59.

was resorted to when the wars no longer brought sufficient levies of captives. Sexual vices, laziness, decline of energy and enterprise, cowardice, and contempt for honest labor marked the free and favored who were the unfortunate beneficiaries of slave-power. Rome fell because this form of artificial selection coöperated with selection by civil war, proscription and foreign campaigns of conquest, by means of which her best stocks were extinguished. I will not go so far as to say with Jordan that only cowards and weaklings were left. But I am convinced that the flower of the Republic was blighted either directly or indirectly by the five centuries of warfare. And I agree unreservedly in Jordan's general conclusion that the warlike nation of to-day is the decadent nation of to-morrow. . . . War still selects the parasite and corrupts the streams of social strength and sanity. It spells, not progress, but retrogression of the species."[13]

If authorities attribute the stagnation and downfall of Greece, Rome and Turkey to the development and execution of the militaristic spirit, what of France which Gaston Bodart, the eminent authority on war, proves "has been the most warlike nation of modern times?" France has continually had to lower her minimum height requirements for the conscripts for service so as to enable certain cantons to furnish their complement of soldiers. "Louis XIV bequeathed to his successors a people dwarfed by long wars," wrote De Chateauneuf in 1833, "and Louis XV, after him, was obliged to reduce the required height of the soldiers to five feet.

"Since Louis XV, the same causes have continually compelled the lessening of the height requirement. It is at present four feet and ten inches (1 metre, 57 centimetres), but in spite of this continual lowering, in spite of the more advanced age at which the young soldier now enters the service, an age at which the development of the body is indeed near its full limit, although the militia takes possession of him at his very

[13] Todd, A. J., "Theories of Social Progress," copyright 1918 by The Macmillan Company, pp. 299–300. Reprinted by permission.

emergence, so to speak, from infancy, at sixteen and eighteen years of age—this low stature of the young men is, today, together with the accompanying condition of infirmity, one of the commonest causes of exemption from service."

"Conscription," wrote M. de Petigny almost one hundred years ago, "has destroyed not only the generations exposed to it; it has struck at its very source the life of the generations to come. In constantly taking from the nation the *élite* of its youth, it has left in France only the infirm and adolescent. Consequently marriages are made only with soldiers used up by the fatigues of war, or with youths hardly escaped from infancy, who hasten to find a protection, in these immature marriages, from the rigour of the conscription laws. Such ill-made unions have been able to produce only a degenerate race, and the proof of this is found in the increase, in recent years, of the numbers of exempts. According to the report of the War Office, the proportion of exempts averaged, in 1827, for all France, forty-three per hundred, or one of every three and forty-seven hundredths."[14]

After discussing the effects of wars on France, Bodart concludes: "Now wars have always cost and must always cost large numbers of human lives; and as the lives extinguished are largely or exclusively those of soldiers, the individuals removed from society are the relatively young, strong, and healthy, and hence those most likely to leave strong and healthy offspring. When a large number of the youth of a country, of its best blood, are exterminated either in battle or by disease and hardship, the population must surely and immediately feel the effects of such a loss.

"As France, of all the nations of the world, has made the largest sacrifices of human life in prosecuting the longest and bloodiest wars of modern times, we range ourselves on the side

[14] The last two quotations are from Bodart and Kellog, "Losses of Life in Modern Wars and Race Deterioration," Oxford University Press, 1916, pp. 165–66.

of those who affirm that war has had its large share in producing the present stagnation or even decrease in the French population.'' [15]

In the New World we find two good examples of the results of war. Paraguay has doubtless suffered more from wars than any country in South America. In 1864, Lopez, dictator of Paraguay, invaded Brazil. Argentine and Uruguay united with Brazil and after five years succeeded in defeating him in the battle of Aquidaban. ''Among Lopez' forces,'' writes Jordan, ''according to the Encyclopædia Britannica, boys of twelve years were included, whole regiments being made up of lads under 16. At the beginning of the war, the population of Paraguay amounted to 1,337,437. It fell to 221,079 (28,746 men, 106,254 women, 86,079 children). It is now estimated at 630,000. Here in a small area has occurred a drastic case of racial ravage without parallel since the time of the Thirty Years' War.'' [16]

The southern part of the United States gives us our second example. In summarizing the study made by H. E. and D. S. Jordan on the selective effects of the Civil War on the people of Virginia we find the leading men of the South were the first to enlist; forming themselves into select companies of militia. Those who fought the most survived the least, the result of which ''was that the men of the highest character and quality bore largely the brunt of the war and lost more heavily than their inferiors. Thus was produced a change in the balance of society by reducing the percentage of the best types without a corresponding reduction of the less desirable ones, a condition which was projected into the next generation because the inferior lived to have progeny and the others did not.'' [17]

In general, we think it can be said that primitive warfare

[15] Bodart and Kellog, ''Losses of Life in Modern Wars and Race Deterioration,'' Oxford University Press, 1916, pp. 155–56.
[16] ''War and the Breed,'' Beacon Press, 1915, p. 164.
[17] *Ibid.*, pp. 195–96.

tended to be eugenic. The rival suitors fought and often the conquerors won the women. Chiefs usually represented the best physical and mental type and generally had several wives. In modern warfare, on the other hand, the process has become dysgenic rather than eugenic. Standing armies are dysgenic in that the fittest are selected and thus prevented from marrying and begetting legitimate children. We may assume that in general officers are superior to privates, and that almost always a higher percentage of officers is killed than privates. History shows that the world has had thirteen years of war for every year of peace. According to Sorokin [18] between 1100 and 1500 England spent 212 years in war and France 181. Between 1501 and 1900 the more important countries of Europe—England, France, Austria-Hungary, Russia, Turkey, Spain, Poland, Denmark, Holland, Prussia, and Sweden—spent 2,281 years in war. For the last period England had 207 war years, while France had 230.5.

From the above it would appear that civilization is trying to destroy itself. Many of our eugenists think this is true. They, however, apparently overlook certain important factors. First, it is only the males that have been selected for war; the females have not been killed off. From the writings of some of these one would never suspect that a woman had anything to do with heredity. C. Gini [19] and F. Savorgnan,[20] however, think that war causes a dearth of males and thus enables the females to be more choice in their selection of males; thereby partially, at least, compensating for the eugenic loss of the males. Two objections may be registered against this view: (1) The females are forced to select males from among those who escape war; (2) War brings a change in economic and social conditions which cause many of the

[18] Compare "Contemporary Sociological Theories," Harper, 1928, p. 324.

[19] Compare "The War from the Eugenic Point of View," *Eugenics in Race and State*, Williams and Wilkins, 1923, pp. 430 ff.

[20] Compare "La gerra e l'eugenica," *Scientia*, June, 1926,

superior women to choose economic independence rather than husbands and children.

Second, we should remember that war does not take the old or the very young men. Many of these are or will be just as eugenically capable of parenthood as those selected for war. Third, we should consider that war selects on the basis of physical rather than mental fitness. Although idiots and imbeciles are rejected, many of the physically fit have only mediocre mental abilities, while a large percentage of the physically unfit have brilliant minds. Fourth, it should be remembered that war is often accompanied by pestilence, disease, and hard economic conditions, all of which remove many of the unfit. There is little, however, that would lead one to think that advancement has been due to war, but rather in spite of it. It is hardly possible to imagine what the result would have been had we spent our energies in peace rather than in war.

The effects of religion on population.—Religion, especially Christianity, has affected the quantity of population in three ways: 1. By charity, 2. By celibacy, 3. By dogmatism.

1. *The effects of charity.* Preliterate peoples do not believe in heaping upon themselves unnecessary burdens. If people are not able to look after themselves after the stage of childhood, they can die. They have no charity system to keep alive and reproduce an enlarging group of weaklings. But with the development of Christianity, especially with the doctrine of winning a home in a future world by deeds of charity, many began to seek out the paupers and to lavish their moneys upon them, thus causing this group of social parasites to live and reproduce their kind. Gradually we are learning that we have the "Devil's poor" as well as "God's poor" and the medieval doctrine of salvation is breaking down so that we are becoming more and more discriminate in our charity. We are learning that in much of our charity we are just increasing the burdens for ourselves and for future generations, by keeping alive and helping to perpetuate a group of social para-

sites composed of the worst blood of the nation. Society must somehow rid itself of this condition by installing "artificial filters to intercept degenerate types."

2. *The effects of celibacy.* Celibacy as a means of checking population is discussed in another connection. Here, we propose to discuss it more from the eugenic point of view. By forcing celibacy upon their religious leaders, it is claimed that certain religions and sects have done the world an immeasurable amount of harm from the eugenic point of view. In most sections the Buddhists prohibit the marriage of their religious leaders. Likewise the Roman Catholic church prohibits the marriage of its priests and nuns, except among certain Slavic groups. While not required of their leaders, celibacy is quite common among certain sects; the teaching being that celibacy is higher than the married state. By enforcing celibacy the blood of these people was cut off and the world made to suffer thereby. Some claim that the blood was not so much cut off as would appear because it took an illegitimate course. Draper says, "For those who have made this subject their study have long ago been satisfied that public celibacy is private wickedness. This mainly determined the laity, as well as the government in England, to suppress the monasteries. It was openly asserted that there were one hundred thousand women in England made dissolute by the clergy." [21]

Even if this be true it would not compensate because undoubtedly most of the priests and priestesses left no offspring; those children who had a priest for a father would hardly have a mother up to par, and illegitimate children never have the same opportunities as legitimate children. Certainly this was not conducive to the production of men of genius.

"The long period of the dark ages under which Europe has lain is due, I believe, in a very considerable degree," said Galton, "to the celibacy enjoined by religious orders on their

[21] "History of the Conflict between Religion and Science," Appleton, 1875, Fifth Edition, pp. 262–63.

votaries. Whenever a man or woman was possessed of a gentle nature that fitted him or her to deeds of charity, to meditation, to literature, or to art, the social condition of the time was such that they had no refuge elsewhere than in the bosom of the Church. But the Church chose to preach and exact celibacy. The consequence was that these gentle natures had no continuance, and thus, by a policy so singularly unwise and suicidal that I am hardly able to speak of it without impatience, the Church brutalized the breed of our forefathers. She acted precisely as if she had aimed at selecting the rudest portion of the community to be, alone, the parents of future generations. She practiced the arts which breeders would use, who aimed at creating ferocious, currish, and stupid natures. No wonder that club law prevailed for centuries over Europe; the wonder rather is that enough good remained in the veins of Europeans to enable their race to rise to its present very moderate level of natural morality." [22]

After making a thorough study of the effects of a celibate priesthood, De Candolle concludes:

"It is not a matter of indifference that certain categories of the educated, intelligent, and virtuous public should or should not be restricted to celibacy. Aside from all dogma and from the discipline of the clergy, the result is not the same for a country, from the standpoint of education, when there are, for example, forty or fifty thousand celibate ecclesiastics or an equal number of ecclesiastics who are fathers of families. Even in reducing the inheritance of things intellectual to the minimum, the simple existence in Protestant countries of married pastors assures the development from year to year of a certain number of educated or upright persons who exert a favorable influence on society." He then names forty-nine outstanding men who were the sons of Protestant ministers.

"I," he continues, "could have tripled or quintupled these lists indicating men of recognized distinction but less known to

[22] "Hereditary Genius," Macmillan (London), 1892, pp. 343–44.

the general public. This would be useless as a demonstration, for the names enumerated are sufficient to show to what extent science, medicine, letters would have been impeded during two centuries if celibacy had been imposed upon the ecclesiastics of all cults, or if, being married, their habits of domestic education had been bad.'' [23]

''Whatever may be said of the eugenic worth of the women who take the veil,'' writes Holmes, ''the men who become priests or monks are above the average level of intellect. De Candolle in his *Histoire des sciences et des savants* has cited a long list of eminent men who were sons of Protestant clergymen and who would not have been born had the institution of celibacy prevailed in the Protestant churches. Of the 101 scientists who were foreign members of the Academy of Sciences of Paris, 14, or over 13 per cent, were the sons of pastors. As Lapouge has pointed out, a large proportion of eminent Jews are the sons of rabbis. For a long time the Church afforded one of the most promising careers for men of exceptional intellect and character. To the extent to which such men were committed to a celibate life, the race suffered a loss of a valuable inheritance. Since the population of the Catholic world has sustained this loss for many centuries the cumulative effect of such a dysgenic process could scarcely fail to be considerable.'' [24]

''A priesthood,'' says Ross, ''like that of the Roman Catholic Church is in point of intellectual and moral endowment much superior to the general population from which it is drawn. Its celibacy therefore causes a superior current of heredity to be lost to the race. How serious this loss is may be gauged by showing what science and letters would have missed had the Protestant churches followed the Catholic church in requiring sacerdotal celibacy. Agassiz, Berzelius, Encke,

[23] *Histoire des sciences et des savants*, 2e éd., 1885, pp. 149–52. Quoted by Ward, L. F., ''Applied Sociology,'' Ginn, 1906, pp. 164–65.

[24] ''The Trend of the Race,'' Harcourt, 1921, p. 361.

Euler, Jenner, Linnæus, Emerson, Hallam, Hobbes, Addison, Ben Jonson, Lessing, Richter, Swift, Thomson, Wieland, and Wren, as well as a host of lesser stars, were sons of Protestant clergymen." [25]

"The development of a priesthood bound by *Celibacy* has been a loss to religion" writes Jordan, "debarring piety as it has from reproducing itself in progeny. The conditions of personal success in professional life now tend also to enforce Celibacy on women of superior ability, and have delayed marriage on the part of men. These factors on the whole may work to the advantage of present day society, but certainly at the expense of future racial welfare." [26]

The records in the United States and England show that ministers have made good sires. An investigation shows that 1,270 of the influential men in English history were sons of ministers, 510 were sons of lawyers, and 350 were sons of physicians. One in every six of the forty-eight foreign members of the English Academy of Science, and one in every eight of the ninety-nine foreign members of the French Academy of Science is a minister's son. Visher, in his study of *Who's Who in America,* 1922–1923, based on the census of 1870, found that "clergymen fathered 2,400 times as many notables as did unskilled laborers in proportion to number." [27] A celibate ministry in the Protestant churches would have robbed the world of these notables. The position of the Church has changed, however, and it no longer occupies the place it formerly did or gathers to itself the excellent men it once did. Formerly it offered about the only opportunity for men of marked abilities, but there are so many professions today that the majority of bright minds do not enter the ministry. "There are many thousands [of eminent men] now

[25] "Principles of Sociology," Century, 1920, p. 387.
[26] "War and the Breed," Beacon Press, 1920, p. 11.
[27] *The American Journal of Sociology,* Vol. XXX, No. 5, March, 1925, p. 551.

who do not belong to any religion,'' says Ward, ''and these always embrace the best minds.'' [28]

3. *The effects of dogmatism.* The various sects of Christians have established *dogmas* and tried to force others to accept them. Some have been worse than others, but all have been guilty to some extent. Those who refused to accept these dogmas were murdered, driven out, or made to feel so unpleasant that they moved to other sections. The people who could not accept these doctrines have usually been the thinkers, the brightest minds of the group and their murder constituted a dysgenic process. In countries where religious liberals have merely been driven out those countries have suffered from a dearth of leaders.

''The extent to which persecution must have affected European races,'' writes Galton, ''is easily measured by a few well-known statistical facts. Thus, as regards martyrdom and imprisonment, the Spanish nation was drained of free-thinkers at the rate of 1,000 persons annually, for the three centuries between 1471 and 1781; an average of 100 persons having been executed and 900 imprisoned every year during that period. The actual data during those three hundred years are 32,000 burnt, 17,000 burnt in effigy (I presume they mostly died in prison or escaped from Spain), and 291,000 condemned to various terms of imprisonment and other penalties. It is impossible that any nation could stand a policy like this, without paying a heavy penalty in the deterioration of its breed, as has notably been the result in the formation of the superstitious, unintelligent Spanish race of the present day.

''Italy was also frightfully persecuted at an earlier date. In the diocese of Como, alone, more than 1,000 were tried annually by the inquisitors for many years, and 300 were burnt in the single year 1416.

''The French persecutions, by which the English have been large gainers, through receiving their industrial refugees, were

[28] ''Applied Sociology,'' Ginn, 1906, p. 161.

on a nearly similar scale. In the seventeenth century three or four hundred thousand Protestants perished in prison, at the galleys, in their attempts to escape, or on the scaffold, and an equal number emigrated. Mr. Smiles, in his admirable book on the Huguenots, has traced the influence of these and of the Flemish emigrants on England, and shows clearly that she owes to them almost all her industrial arts and very much of the most valuable life-blood of her modern race.'' [29]

''Both Catholic and Protestant Christianity,'' according to Holmes, ''show an unenviable record for persecution which has scarcely been equalled in the known history of any pagan religion. The men of superior intellect and force of character who during the inquisition have fallen victims to the zeal of intolerant devotees of the current creed number many thousands. Llorent (*Hist. de l'inquisition,* tom. iv, pp. 371–372) states that the Spanish Inquisition alone burnt more than 31,000 persons and condemned 290,000 to other forms of punishment. According to Lecky (*Hist. of Rationalism in Europe,* vol. 2, pp. 40–41) ''the numbers of those who were put to death in the Netherlands alone, in the reign of Charles V, has been estimated by a very high authority at 50,000 and at least half as many perished under his son.' In the 17th century over three hundred thousand Protestants were said to have been put to death in various ways, and an equal number emigrated. The loss of large numbers of the Huguenot stock as a result of persecution has generally been adjudged a great damage to the French people, although other nations may have been benefited by receiving the refugees which escaped imprisonment or death . . . any country in which persecution has been vigorously carried on for a long period of years cannot fail to lose a large proportion of its best inheritance.'' [30]

Speaking of the Spanish persecution of the Flemish, Novicow tells us that when the Duke of Alba came ''He massacred,

[29] ''Hereditary Genius,'' Macmillan (London), 1892, pp. 345–46.
[30] ''The Trend of the Race,'' Harcourt, 1921, pp. 360–61.

hung, tortured, and exiled thousands of persons. Terror hovered over those wretched provinces. The whole country sank into a state of dismal mental lethargy. The generous Flemish folk fell into so heavy a sleep that they have scarcely succeeded in rousing themselves even to this day." [31]

Quite often wars and religion go hand in hand in exterminating the thinkers or people of a different religion and many wars have a religious background, as the history of a number of the European wars reveals. Spain drove out the Mohammedan Moors, banished the Jews, killed her leaders in wars, and put her best blood into the Church in celibate priesthood, and thus entered upon a state of lethargy from which it will take her many years to recover.

In the southern part of the United States we have a slightly different situation. The Civil War arose over the slavery issue. During the war and reconstruction intense prejudice developed against the North and anything connected with it. The South shut herself up by opposing suggestions from the outside, especially from the North. For this reason northern men, especially ministers and teachers, often met with opposition in the South. Even native Southerners who went North for their education, sometimes experienced a certain amount of opposition when they returned which occasionally made it more pleasant to live and work elsewhere. As a result the South lagged behind educationally and economically and has made little perceptible advancement politically or religiously. Even some sixty years after the war one finds residues of this old attitude, which usually takes a religious turn, and thus causes some of the best thinkers who would be a great asset to leave the South. The Civil War and Reconstruction attitudes, however, are almost completely broken down today; as a result more educated Southerners are remaining in the South, more educated Northerners are coming into the South, and rapid advancement is taking place.

[31] "War and Its Alleged Benefits," Holt, 1911, p. 55.

PART III

MOVEMENTS OF POPULATION AND THE DIFFUSION OF CULTURE

CHAPTER VIII

CULTURE

The nature of culture.—Like many other social concepts culture is hard to define, and as a result is used with many connotations, varying from the crude use of tools to the rather conventional ideal of personal refinement. "In history and social science," says Clark Wissler, "we speak of the mode of life of this or that people as their culture."[1] In culture, then, there are not only many types, but an infinite number of elements.

Although there are those who claim that animals have culture,[2] it is generally agreed that culture is a distinctive human trait. According to E. B. Tylor, culture "is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society."[3] These six things, as pointed out by C. M. Case,[4] are rooted in the behavior pattern of individuals but at the same time are also super-individual, super-psychic,

[1] "Man and Culture," Crowell, 1923, p. 1.

[2] Compare Hart, H., and Pantzer, A., "Have Subhuman Animals Culture?" *The American Journal of Sociology,* Vol. XXX, May, 1925, pp. 703–09.

[3] "Primitive Culture," (London), 1920, Vol. I, p. 1.

[4] Compare "Culture as a Distinctive Human Trait," *Am. Jour. Soc.,* Vol. XXXII, May, 1927, pp. 906–20.

and super-organic, involving reflective and abstract thinking and doing by means of tools and symbols.

The above brings to the front a controversial question: Is culture wholly an objective, extra-individual, entity, which imposes itself upon individuals who can only be said to reflect it; or does it have its beginning in the creative act of an individual psyche and thus emanate from the individual? Goldenweiser proposes a double relationship: "All culture, in the last analysis, emanates from the individual, but the individual psyche itself owes its content to culture."[5] Both aspects are included by R. E. Park in his duo-division. The *form* includes the external and visible, such as art, ceremonies, and tools; while the *content* is composed of the deep and inaccessible, such as memories, traditions, and unorganized social experiences.[6] Culture to Boas is more on the psychic plane. It is "an expression of the achievements of the mind, and shows the cumulative effects of the activities of many minds."[7]

Leaving the more strictly ethnological views we come to a group, who in emphasizing the external and visible, or the more objective phase, wish to make culture and civilization more or less interchangeable. Ellwood apparently considers culture and social institutions as one and the same thing when he says that "language, industry, science, art, morality, religion, government, in brief all human institutions and human achievements—make up the sum and substance of human culture."[8] Another group holds that primitive people had no real civilization; that civilization was comparatively late in development; and that culture is the latest step in civilization. Park makes the following distinction between the two: "Civil-

[5] "Psychology and Culture," *Pub. Am. Soc. Society*, Vol. XIX, 1925, p. 15.

[6] Compare "Culture and Cultural Trends," *Pub. Am. Soc. Society*, Vol. XIX, 1925, p. 24.

[7] "The Mind of Primitive Man," *Journal of American Folk-Lore*, Vol. 14, January and March, 1901, p. 11.

[8] "Theories of Cultural Evolution," *American Journal of Sociology*, Vol. XXIII, May, 1918, pp. 782–83.

ization . . . is a more abstract conception than culture. Civilization includes both technique and the mores . . . [it] is the term we apply to those aspects of culture which have been generalized, rationalized, and are generally intelligible. So far as there is any distinction in the use of the terms, civilization emphasizes technique as culture emphasizes mores.''[9]

Modes of life differ greatly from race to race and age to age; consequently, there is a difference in the culture of groups. The activities of the African Bushman differ from those of the New Yorker: both are cultural, though in different grades of complexity. The former is oftentimes considered as possessing a *lower* culture, and the latter a *higher*. Such a distinction carries with it no idea of a moral scale of values, but simply designates a position in an evolutionary scheme of progression from the simple to the more complex. Dissenting from this view Edward Sapir prefers to speak of culture as genuine and spurious. ''The genuine culture'' he says, ''is not of necessity either high or low; it is merely inherently harmonious, balanced, self-satisfactory. . . .If the culture necessitates slavery, it frankly admits it; if it abhors slavery, it feels its way to an economic adjustment that obviates the necessity of its employment.'' [10] Pursuing this trend of thought, he shows that it is easier for the genuine culture to exist on a lower level of civilization and points to the fact that the American Indian of today is an example of ''the fading away of genuine cultures.'' Obviously, then, the spurious culture is one which for a particular group is not ''harmoniously balanced'' or ''self-satisfactory.''

Cultural stages.—There have been a great many empirical attempts to condense cultural phenomena into classificatory schemes by which the different stages of culture may be recognized. Ellwood conceives cultural evolution to be ''a smaller

[9] ''Culture and Cultural Trends,'' *Pub. Am. Soc. Society*, Vol. XIX, 1925, pp. 29–30.

[10] ''Culture, Genuine and Spurious,'' *Am. Jour. of Sociol.*, Vol. XXIX, January, 1924, p. 410.

process, taking place within, and arising out of, social evolution, much as social evolution [the evolution of communities and their organizations] takes place within, and arises out of organic evolution.'' [11] It must be remembered, however, that cultural evolution to Ellwood is what is ordinarily called civilization. To Bernard, who is speaking mainly from the viewpoint of ''psychosocial mechanisms and patterns of the adjustment behavior of people,'' the evolution of culture may be separated into three general stages: (1) those of the lowest animals types, (2) median animal types, and (3) the higher animals. The first stage has no culture, the second but little, while the third stage embraces the savage, barbarian, and civilized types of culture.[12] Case has divided cultural classifications into historical, which are chiefly concerned with the beginnings in respect to time and place; and the psychological, which ''attempts to explain cultural phenomena in terms of the mental and social elements out of which they arise in all ages, and in every place where human beings live together in a common group life.'' [13]

From the viewpoint of historical classifications, several stand out. The table on page 143 by Osborn [14] shows an effort to correlate the Palæolithic culture stages in Europe with the different geological ages.

Authorities are not agreed as to the time man appeared in Europe or how long he remained in the different cultural stages. ''In Chellean times,'' says Obermaier, ''primitive man was a care-free hunter wandering as he chose in the mild and pleasant weather, and even the colder climate of the arid 'loess' period of the late Acheulean was not sufficient to over-

[11] Compare ''Theories of Cultural Evolution,'' *American Journal of Sociology*, Vol. XXIII, May, 1918, p. 781. Much the same viewpoint is developed in his ''Cultural Evolution,'' Century, 1927.

[12] Compare ''The Interdependence of Factors Basic to the Evolution of Culture,'' *American Journal of Sociology*, Vol. XXXII, Sept., 1926, pp. 177–205.

[13] ''Outlines of Introductory Sociology,'' Harcourt, 1924, p. 161.

[14] ''Men of the Old Stone Age,'' Scribner, 1921, p. 33.

come his love of the open; he still made his camp on the plains at the edge of the forest, or in the shelter of some overhanging cliff." [15]

Geologic Time	*Penck, 1910* *Geikie, 1914*	*Wiegers, 1913*	*Boule, Breuil* *Obermaier, 1912* *Schmidt, 1912*
Postglacial	Magdalenian	Bronze Neolithic Azilian	Magdalenian Solutrean Aurignacian
IV. Glacial	Solutrean	Magdalenian Solutrean Aurignacian Mousterian	Mousterian
Third Interglacial	Mousterian	Mousterian	Early Mousterian Cold Acheulean Warm Acheulean Chellean Pre-Chellean
III. Glacial	Mousterian	Cold Acheulean	
Second Interglacial	Acheulean Chellean	Warm Acheulean Chellean	
II. Glacial			
		— Pre-Chellean —	
First Interglacial			

Osborne thinks man first entered the caverns in the Fourth Glacial or Post Glacial period, and assumes he possessed considerable culture at that time. "There is no evidence, however, " he writes, "that the cavern depths were generally inhabited, for the obvious reason that there was no exit for the smoke; the old hearths are invariably found close to or outside of the entrance, the only exception being in the entrance to the great cavern of Gargas, where there is a natural chimney for the exit of smoke. There was no cave life,

[15] Quoted by Osborne, H. F., "Men of the Old Stone Age," Scribner, 1921, p. 33.

strictly speaking—it was grotto life; the deep caves and caverns were probably penetrated only by artists and possibly also by magicians or priests. It is in the *abris* or shelters in front of the grottos and in the floors of the caverns that remarkable prehistoric records are found from late Acheulean times to the very close of the Palæolithic, as in the wonderful grotto in front of the cave at Castillo, near Santander."[16]

In 1865 Sir John Lubbock, afterwards Lord Avebury, proposed a division and terminology for the Pre-historic Archæology, which is in wide use. He divided the period into four great epochs:

"I. That of the Drift; when man shared the possession of Europe with the Mammoth, the Cave bear, the Woolly-haired rhinoceros, and other extinct animals. This I have proposed to call the 'Palæolithic' period.

"II. The later or polished Stone Age; a period characterized by beautiful weapons and instruments made of flint and other kinds of stone; in which, however, we find no trace of the knowledge of any metal, excepting gold, which seems to have been sometimes used for ornaments. For this period I have suggested the term 'Neolithic.'

"III. The Bronze Age, in which bronze was used for arms and cutting instruments of all kinds.

"IV. The Iron Age, in which that metal had superseded bronze for arms, axes, knives, etc.; bronze, however, still being in common use for ornaments, and frequently also for the *handles* of swords and other arms, though never for the blades."[17]

According to Thomas, "The frugivorous, the hunting, the pastoral, and the agricultural are the stages [of culture] usually assumed."[18] No classification is satisfactory unless considered in a very broad sense. Some tribes skip a stage;

[16] "Men of the Old Stone Age," Scribner, 1921, pp. 32–33.
[17] "Pre-Historic Times," Seventh Edition, Holt, 1913, p. 2.
[18] "Source Book for Social Origins," Badger, 1909, p. 25.

while others are in two or more stages of culture at the same time. The Indian men were hunters while the women were agriculturists. Some African tribes are hunters, pastorals, and agriculturists at the same time. Some Indian tribes of Mexico passed from the hunting stage to the agricultural without going through the pastoral period. "In brief, then," according to Goldenweiser, "the anthropologist does not believe that cultural development is necessarily either uniform or gradual or progressive, although any change or set of changes may possess any or all of these characteristics." [19]

The more recent trend has been away from the formal stages of the historical school toward a psychological and social study of culture within a given area. Two problems are involved in the cultural-area concept: the ecological and the functioning of the tribal group in the area or community. Such a procedure makes it possible to study intensively a concrete patch of culture in a specific territory. As a result the outstanding authorities in culture today are outstanding in respect to one area. Boas is authority for the Indian tribes of British Columbia and Southern Alaska; Tracher for California; Swanton for the Gulf States; Morley and Spinden for Yucatan; Mills and Shetrone for Ohio mound culture.

Methods of acquiring culture.—While there is no such thing as racial culture in the sense that one group is not able to appropriate and use the culture of another group, each tribe of people seems to have a type of culture which distinguishes it from other tribes. This tribal culture is built up by cultural traits and complexes, and by an examination of these traits and complexes the culture of one tribe can be distinguished from another. For example, two tribes may require all the male members to marry, but one practices endogamy while the other requires exogamy, or one tribe may not permit the son-in-law to speak to the mother-in-law, while

[19] "Diffusionism and the American School of Historical Ethnology," *American Journal of Sociology*, Vol. XXXI, July, 1925, p. 20.

another requires the son-in-law to live with the mother-in-law. Cultural traits and cultural complexes, according to Wissler, are acquired by three different processes: (1) by invention or discovery, (2) by borrowing, and (3) by convergence of development.

1. *Invention.* Although Goldenweiser thinks no large part of culture "represents the culmination of a process of rational thought" [20] but comes rather from emotional and unconscious factors, we may assume that no tribe is so low that it has no one capable of making inventions or discoveries. The inventors and discoverers see the opportunity for improvements and changes from time to time and when these are made known and proved useful that group makes an advance in its culture.[21]

Some writers have overstressed the part invention has played in the advancement of culture; while others see improvements in culture as due almost completely to borrowing. While it is true that the culture of every tribe shows distinct traces of borrowing, the appearance of similar traits of culture in widely distributed areas seems to show independent origin. For example, the Negroes of Africa and the Indians of America had a peculiar way of making baskets of similar designs, and the blowgun was found in both Malaysia and in tropical America. The circumstances of these inventions seem to point to independent origin. There is no good reason for thinking that such inventions did not occur independently in different places and at different times. We know that in modern times the same discovery is made independently by two or more individuals. If Darwin and Wallace working independently arrived at the same theory of evolution, and if Correns, De Vries, and Tschermak, working independently, should simultaneously rediscover Mendel's law, it seems rea-

[20] "Diffusionism and the American School of Historical Ethnology," *American Journal of Sociology*, Vol. XXXI, July, 1925, p. 20.

[21] In Dixon, R. B., "The Building of Cultures," Scribner, 1928, Chapter II, is found an excellent discussion of discovery and invention.

sonable to believe that preliterate peoples made the same discoveries at different places and times.[22] "Any fair-minded person," says Wissler, "will accept this as proof that the use of iron in a natural state was discovered in at least three places independently." [23]

2. *Borrowing.* The acquirement of cultural traits by borrowing is a very common experience among all tribes. After a discovery is once made the idea is put to work in that group and after functioning in the culture of that tribe is taken over by neighboring tribes and thus starts on the eternal round of diffusion. These traits diffuse outwardly in all directions and are about as contagious as the measles. In speaking of Thorndike's assertion that in any civilization, indigenous traits are related to borrowed ones as one in ten, Goldenweiser says "the fact is undeniable that the borrowing, adoption and assimilation of imported commodities and ideas is an ever present and culturally significant phenomenon, equally conspicuous in modern as well as in primitive society." [24]

3. *Convergent development.* Some writers criticize and otherwise disagree with Wissler because he thinks it indeed possible "that in the course of time two or more quite different traits, originating in widely separated cultures, may come to be similar." [25] Wissler offers as proof of this convergence, Nördenskiold's illustration of the T-shaped axes found in Egypt and Peru. The axes of Peru were made of stone while those of Egypt were made of copper. It was formerly thought that the idea for the Peru ax was borrowed from Egypt, but it is now believed that the Peru ax is much older. As the two axes were developed and improved they

[22] Ogburn, W. F., "Social Change," Huebsch, 1922, pp. 90–102, gives a long list of inventions and discoveries made independently by two or more persons.

[23] "Man and Culture," Crowell, 1923, p. 105.

[24] "Early Civilization," Knopf, 1922, p. 27.

[25] "Man and Culture," Crowell, 1923, p. 105.

tended to become more and more alike. "So then," says Wissler, "we have a case of convergence, in which two quite different axes, of radically different materials and in widely separated parts of the world, were the starting points from which evolved two similar forms." [26]

The influence of environment on culture traits.—Writers like Montesquieu, Taine, Ratzel, Semple, and Huntington have undoubtedly overstressed the influence of environment, yet it must be admitted that it played an important part in the development of the cultural traits of very early and preliterate peoples, and wields some influence on highly civilized groups. The Eskimos built snow-houses because they had an abundance of this "commodity," and the eastern woodland Indians had birch-barked canoes and bark-covered tipis because of the presence of the birch tree. The Indians of the Northwest manufactured snow-shoes because they were a necessary means of travel in that country. Without doubt the physical environment furnishes what Wissler calls the "brick and mortar" of the culture, but it does not furnish the architect's plans. "It is clear from the start," writes Goldenweiser, "that of all aspects of civilization, material culture is the one most closely allied with environmental factors." He points out that people build their homes, dress, eat, move about, and even run their industries according to the materials furnished by the physical environment. He thinks that "material culture should thus be found in close touch with the physical factors of Nature is indeed to be expected for is not material culture the physical environment itself, or part of it, transformed into civilization through the creativeness of man?" [27]

There are, on the other hand, a number of notable excep-

[26] "Man and Culture," Crowell, 1923, p. 107.

[27] Reprinted from "Early Civilization," by A. A. Goldenweiser, by and with permission of, and special arrangement with Alfred A. Knopf, Inc., authorized publishers, 1922, p. 293.

tions, showing that people do not always make use of materials which the physical environment furnishes them. The environmental enthusiast overlooks the exceptions because, as Goldenweiser points out, "Culture and mind are evanescent and elusive; environment is definite, concrete, measurable. Hence the modern mind, ever eager for measurable results and mathematical formulations, is easily thrown off its guard by any at all ingenious attempt to reduce civilization to environmental determinants." [28]

The Indians of the Rocky Mountain section did not make use of the abundant mineral resources because they did not know how to use them. There are examples [29] of tribes living under almost identical conditions that show this same weakness even when their cultures demand they use other available material. The Eskimos build snow-houses, use the dog as a means of transportation, and eat the flesh of wild reindeer, while the Chukchee of Northeastern Siberia live under almost identical climatic conditions, yet they use clumsy skin tents, use domesticated reindeer for transportation, and breed herds of half-tame reindeer for food. What is the explanation for this? The Chukchee are more given to wandering than the Eskimo and do not wish to take the time to build snow-houses. Either through a more recent migration or by living near the Jungus who had domesticated horses, the Chukchee got the idea of domesticating the reindeer and making use of its strength and fleetness as a beast of burden. It appears that the Eskimo had no one to teach him to domesticate the reindeer, yet it seems reasonable to suppose that if the Chukchee could make the transfer of ideas from a domesticated horse to a domesticated reindeer that the Eskimo should have made the transfer from a domesticated dog to a domesticated reindeer.

The Hopi and Navajo Indians of Arizona furnish us an-

[28] Early Civilization," Knopf, 1922, p. 293.
[29] Compare *op. cit.*, pp. 292–301.

other good example [30] of two different cultures existing side by side under the same environmental conditions. The same building material is available for both groups; the Hopi construct the famous sandstone houses while the Navajo dwell in rudely constructed earth-covered huts. The Navajo are very poor farmers while the Hopi are so efficient that they can grow crops where the whites fail. Women spin and weave among the Navajo, but among the Hopi this is men's work. The Navajo practice polygamy while the Hopi are strict monogamists. The Navajo are warlike while the Hopi are peaceful. The best explanation of this difference in culture is that the Navajo represent a more recent migration to Arizona than the Hopi. Likewise a comparison of African tribes living side by side like the Bushmen and Hottentots, and the Ovambo and Hesers shows wide differences in their economic and home life. Furthermore, the Chinese have had milk-producing animals from early times and have been in contact with Turkish and Mongol peoples who use dairy products, yet they, in common with the "Japanese, Koreans, and Indo-Chinese, have an inveterate aversion to the use of milk."

In view of these facts, Lowie thinks that environment "enters into culture, not as a formative but rather as an inert element ready to be selected from and molded." [31] He says that environment alone "cannot explain culture because the identical environment is consistent with distinct cultures; because culture traits persist from inertia in an unfavorable environment; because they do not develop where they would be of distinct advantage to a people; and because they may even disappear when one would least expect it on geographical principles." [32]

According to Sapir, who holds much the same view, "it needs only the most casual survey of culture to teach us that

[30] Compare Lowie, "Culture and Ethnology," Boni and Liveright, 1921, pp. 50 ff.

[31] "Culture and Ethnology," Boni and Liveright, 1921, p. 63.

[32] *Ibid.*, p. 62.

culture is not congruous with political lines, nor immediately determined by environmental conditions, but is strictly dependent on its historical antecedents and on the foreign influences with which it comes into constant contact." [33]

Goldenweiser thinks "that a large set of environmental influences, while actual, are not significant for culture; that in another set of cultural phenomena culture and environment co-operate and must be regarded as codeterminants; that in two of its fundamental aspects, that of invention and that of imitation, culture is independent of environment; and that, finally, every culture is largely independent of its environment in so far as it is a historical complex." [34]

Race and culture.—A race, like a tribe, often has some cultural traits that belong to it alone. This has led some to believe that some races are inferior mentally and that culture largely depends upon mentality. So far we have no satisfactory way of measuring innate mentality, for our mental testing is little more than cultural testing. The cultures of some groups lag behind others, but this appears to be due to a lack of cultural contacts. Racial factors do not appear to be directly responsible for the type of culture a group will have. According to Park, it is probable that climate may affect temperament and temperament in turn may determine the type of culture a group or race will select. He says, "(1) that fundamental temperamental qualities, which are the basis of interest and attention, act as selective agencies and as such determine what elements in the cultural environment each race will select; in what region it will seek and find its vocation in the larger social organization; (2) that, on the other hand, technique, science, machinery, tools, habits, discipline, and all the intellectual and mechanical devices with which the civilized man lives and works remain relatively external to the inner core of significant attitudes and values which

[33] "Culture in the Melting-Pot," *Nation,* Vol. 103, Supl. Dec. 21, 1916, Section 2, p. 1.

[34] "Culture and Environment," *American Journal of Sociology,* Vol. 21, March, 1916, p. 633.

constitute what we may call the will of the group. This racial will is, to be sure, largely social, that is, modified by social experience, but it rests ultimately upon a complex of inherited characteristics, which are racial.'' [35]

Huntington thinks a ''certain type of temperament must have tended to become fixed among the Chinese, even though social customs may have determined the details of how that temperament would act in a given crisis.'' [36] It appears that each group or race selects such parts of a foreign culture as suits it and then modifies it to fit its peculiar conditions. Thomas thinks, ''The peculiar cultures of Japan, China, and India were the results of psychic rather than geographic factors in the first place, and the transformation they are now undergoing is again one of ideas.'' [37]

''The whole question of the relative mental ability of the various races,'' writes Ralph Linton, ''must be left an open one, for we have almost no data on which to base conclusions. The cultural status of the different groups cannot be taken as a criterion, for we know that the growth of culture is dependent upon many factors. Today the Japanese are competing with Europeans on terms of equality, yet within the memory of persons still living they were less advanced culturally than their Chinese neighbors. Moreover, history shows that sometimes one race and sometimes another has been in the lead. At the present time the Nordic European is culturally ascendent. A thousand years ago the Chinese were probably the most civilized people in the world. Two thousand years ago the palm would have been awarded to peoples who were predominantly of Mediterranean race.'' [38]

Races of low culture can appropriate and use the high

[35] ''Education in Its Relation to the Conflict and Fusions of Cultures: with Special Reference to the Problems of the Immigrant, the Negro, and Missions,'' *Publications of the American Sociological Society,* Vol. XIII, 1918, p. 60.

[36] ''The Character of Races,'' Scribner, 1924, p. 189.

[37] ''Source Book for Social Origins,'' Badger, 1909, pp. 130–31.

[38] ''An Anthropological View of Race Mixture,'' *Publ. of the American Sociological Society,* Vol. XIX, 1925, p. 71.

culture of other races without serious difficulty. Certain individuals and groups do not have the cultural background or perhaps the potentiality for adjustments that will enable them to invent the instruments of high culture, but not all of those who use new discoveries need to have the abilities of geniuses. An advanced tool indicates an advanced culture but not everyone using the tool needs to have the advanced culture. The African tribesman may not have the typewriter complex and if a typewriter were placed before him it would be only so much junk, but he can be taught to use the typewriter and to become very efficient. The Australian may not be able to count beyond four or five but he can readily be taught to do so. On the other hand, the European can learn only with great difficulty to speak the language of the Bushmen but the European child growing up among the Bushmen learns to speak the language as easily as the Bushmen child.

Boas does not believe that achievement itself is a necessary measure of intellectual superiority. Intelligence seems to be little more than a potentiality for adjustment to the environment which all races apparently have in equal capacity. It includes a general inherited capacity for the development of behavior patterns and the development of these behavior patterns depends upon the type of contacts the environment affords. In fact, the culture attainments vary more within one race than they do between races. In brief, "we fail," writes Wissler, "to discover any essential differences in the tools of early man and those now made in a rationalistic manner; hence we can do no more than assume that from the first they were mere inventions. There may be, however, very great differences in the intensity of rationalization between our ancestors and ourselves, but it is difficult to see how even the earliest cultures we know could have taken form without the same qualitative rationalizing power." [39]

Accumulative culture.—The development of the culture of

[39] "Psychological and Historical Interpretations for Culture," *Science*, Vol. XLIII, Feb. 11, 1916, p. 200.

any group, tribe, race, or nation is nothing more than a process of inventions, borrowing, and modifying. Cultures like rivers go on forever, and only lose their identities in larger streams. The culture of every group reveals distinct traces of accumulation through borrowing.

"Civilization and Society," says Tozzer, "may be likened to a great snowball rolling downhill with accelerating rapidity, and increasing in magnitude all the time. The savage it was who moulded the core of this cultural sphere and with painful effort rolled it up the long ascent until it topped the rise. Now that gravity and momentum are with us, our task is only to direct its course. The snowball is still made of snow; its core is still within, and there is no less admixture of dirt than in its inception." [40]

"In this partnership between man and the earth," wrote O. T. Mason, "the progress of culture has been from naturalism to artificialism; from exploitation to cultivation and domestication; from mere muscular power to more subtle physical force of man, of beast, of water, of air, of fire, of electricity; from tools to machinery; from simplest imitative processes to highly complex processes, involving many materials and motive powers and inventions; from short journeys to long journeys; from mere barter to world-embracing commerce; from monotonous to monorganic food and clothing, shelter and furniture, mental and social appliances to forms as complex and varied as the imagination can conceive. And when the supply gives out, it is not the earth that fails, but it is the comprehension and the skill of men." [41]

All of us were taught that our culture is dependent on the cultures of Greece and Rome, but few of us were taught where Greece and Rome secured the bulk of their cultures. If we go beyond Greece and Rome we find that their cultures

[40] Tozzer, A. M., "Social Origins and Social Continuities," copyright 1925 by The Macmillan Company, p. 5. Reprinted by permission.

[41] Technogeography, or the Relation of the Earth to the Industries of Mankind," *American Anthropologist*, Vol. 7, April, 1894, p. 158.

were largely borrowed from China, India, Egypt, Babylon, etc. Metals were probably being used in Asia around 4000 B.C. and did not reach Europe for over a thousand years. Without iron our culture could not exist and for the beginning of this culture trait we must thank the lowly African tribesmen. Without the magnetic needle, which the Chinese discovered in the second century, A.D., our ships would be hopelessly lost, and without the Chinese contribution of explosives we would be materially handicapped. We admire our Gothic architecture which first appeared in Egypt in 876. Printing appears to have come into Europe from Egypt. The Egyptians perhaps borrowed this idea from the Babylonians who had a system of multiplying text much like printing. They were printing from wooden blocks in 175 A.D. and with plates in the sixth century. They apparently got this idea from the Chinese who knew something of the art much earlier. From Japan we borrowed our Oriental art and from her Germany borrowed the revolving stage which Japan had invented in 1700. China gave to the world the art of manufacturing paper and silk, India spectacles, Egypt glass, and Central America the zero. The Arabic system of numerals came into Europe in the Middle Ages. Inner Asia has contributed certain cereals and domesticated animals; India contributed the hen, and Turkey the tulip, lily, lilac, and perhaps the horse chestnut. For the rudiments of astronomy we are indebted to the Babylonians, Egyptians, and Hindus.

These are only a few of the elements of culture which Europe borrowed in her accumulative process. Even there the process did not stop, but borrowings from abroad and from each other, adaptations, cross-fertilizations, and inventions were greatly accelerated. "Remember," says Ross, "how the Christian Church, Roman law, the feudal tenure, parliamentary government, the jury system, and the federal principle spread by imitation far beyond their original habi-

tat. Marcus Aurelius borrowed from the Germans the status of serfs or *liti*. The centralized government of Louis XIV found imitators all over Europe. The spectacle of free institutions across the Channel was fatal to the old régime in France. The abolition of serfdom, as now the woman's movement and social legislation, spread largely by national example. A true social evolution obeying resident forces has nearly disappeared from the face of the earth, seeing that to-day the germs of every new social arrangement are blown throughout the world, and peoples at the most diverse stages of culture are affected by the jurisprudence, the laws, and the organization of the advanced societies.'' [42]

''Our modern culture,'' writes Ross in another connection, ''owes much to successive fermentations, resulting from the contact of diverse elements. While Western Christendom was passing through its darkest ages, the Mohammedans took up the Greek science with very great enthusiasm and earnestness, added to it whatever results of a similar sort they could find among any of the other peoples with whom they came in contact, and incorporated fresh developments of their own. The treasures of Arabic skill and science, communicated to Christendom through contact with the Moors, resulted in the burst of intellectual activity in the thirteenth century which recorded itself in Scholasticism. Two centuries later began that fertilization of the European mind through direct contact with Greek culture, which has fixed the methods and ideals of the thought and science of the modern world.'' [43]

[42] ''Principles of Sociology,'' Century, 1920, pp. 537–38.

[43] Ross, E. A., ''Foundations of Sociology,'' copyright 1905 by The Macmillan Company, pp. 237–38. Reprinted by permission.

CHAPTER IX

THE ORGANIZED DIFFUSION OF CULTURE [1]

The conflict of culture is one of the fundamental causes of all our racial problems, yet no one thing has brought about such an advancement of civilization. The diffusion of culture may be by conscious, definite, organized methods; or by unconscious, indefinite, unorganized methods. Quite often the diffusion is apparently so natural and naïve that it is difficult to determine whether or not it is really conscious. Again, the terms used for the processes employed often do not reveal that the success of the movement really involves a change in culture. A few of the organized methods will be discussed.

The missionary method.—Before the rise of Christianity there was little of what is now known as the missionary element in religion. Preliterate groups seem to have considered it as a matter of fact that other groups had their own religions and that those who wished to know anything about their gods, could do so by coming over and consulting their religious teachers. In the further advanced religions this idea seems to have largely prevailed. Even the early Hebrews appear not to have shown any special interest in teaching their religion to Gentiles. That they influenced other groups and in turn were influenced by them, however, cannot be doubted. "From the Persian religion," writes Ross, "Judaism received the idea of a resurrection with rewards and punishments, the idea of a hierarchy of messengers (angels) between God and man, the figure of Satan (Ahriman), and

[1] Compare Wissler, Clark, "Man and Culture," Crowell, 1923, Chapter IX.

possibly the practice of meeting for prayer, singing, and reading from the sacred books."[2] Kent thinks "the literary habits, and above all the intense religious zeal of their conquerors, the Babylonians, undoubtedly influenced them. The dazzling spectacle of lordly temples and of a wealthy influential priesthood also could not have failed, indirectly at least, to foster the tendency towards ritualism, already strong within the hearts of the exiles."[3]

Of the more advanced religions, Judaism, Hinduism, and Brahmanism are largely bound up with race, a circumstance which tends to prevent diffusion. Buddhism, Christianity, and Mohammedanism are fundamentally free from racial limitations. These religions have often been associated with political dominion and wherever the followers spread, either by migrations, immigration or war, they carried their religion within them. The Moslem invaders spread their faith through western Asia, eastern Europe, across northern Africa and as far west as Spain. In the sixteenth century Spanish and Portuguese America entered formally into Christendom. The colonial settlers in the United States brought with them and established their different religious sects. It was expected that all should be Christians and the large numbers of Negroes brought in were formally made Christians.

These religions, however, have not always moved as mass changes tied to a political dominance. Buddhism spread from India to Tibet, Siam, China, and Japan as a pure religious change, carried on by monks and teachers. The present spread of Islam is by individuals, missionaries and teachers rather than by political allegiance. The spread of Christianity is now almost completely by missionaries, teachers, and literature. Christianity is more of a missionary religion than any of the other religions and has influenced

[2] "Foundations of Sociology," Macmillan, 1905, p. 237.
[3] "History of the Jewish People," Murray (London), 1899, Vol. 1, p. 240.

them considerably. This missionary spirit is apparently more fervent in American Christianity than in any other type. Weekly collections are taken in almost every church to carry on some phase of the missionary work and American missionaries are in evidence at the ends of the earth. So deep seated is this spirit that it has become one of the dominant characters in our culture. It "springs from a deep social feeling that we have something all mankind must share. . . . Hence, one of the important factors in the spread of culture is the general missionary idea, which seems to have a primitive background, but which has become somewhat rationalized and bids fair to become a socially directed force of the greatest moment, when it is made a matter of systematic procedure."[4]

For what purpose, it may be asked, do we send our missionaries to foreign lands? The obvious answer is "to convert the heathen." And what does the conversion of the heathen imply? Far more than many people surmise. It is a tearing down and rebuilding process—a substitution, for the most part, of a foreign culture for a native one. Many people observe that when a religion united with political dominance sweeps over a country, a cultural change results; but they do not perceive that when the missionary arrives, a similar change occurs, only on a smaller scale. The heathen are taught a new religion which involves reading the Bible, attending church, going through a certain ritualistic performance similar to that belonging to the sect of the missionary, and often studying the language of the missionary's own homeland. It does not stop here, however, but often involves a complete change in dress, customs, and habits; an establishment of schools and a use of text books embodying the culture of the missionary's country. Wissler says, "a little reflection will show that there is more involved than acquiring a knowledge of the Bible, for the 'heathen' are

[4] Wissler, Clark, "Man and Culture," Crowell, 1923, pp. 162–63.

to be made to live according to the ethical and industrial notions of the missionaries. If the 'heathen one' has more than one wife, he is to be induced to be content with one; if he has been disposed to leave certain heavy work to his women, he must be enlightened as to the proper work for women, as the missionary sees it; if he lives in a grass-covered hut, he is shown how to build a house; and above all, if he does not swathe his body in clothing, he must be immediately draped, no matter how disastrous to sanitation and comfort such a proceeding may be. Again, if the missionary is English, he sets out to teach him to read and write that language. What is being done then, is an attempt to displace the original culture. The zeal and justification for this come from religion, but it is not merely the tenets of this religion that are carried to foreign lands.'' [5]

Quite often the missionary deliberately seeks to uproot the institutions, customs, mores, and other social norms and to implant his own culture. A Murray Islander said to Dr. C. S. Myer: ''Sun he come up, sun he go down, eat and drink all day before missionary come. Missionary he make him eat, breakfast sun there, dinner sun up there, and supper sun down there.'' [6]

This conflict of cultures often confuses the natives. The ideas and customs of the missionaries often appear illogical and inconsistent to the natives. Father Christian Le Clercq found that one of the chief obstacles to the conversion of the Indians ''is that most of them have several wives, and that they change them when they like, not understanding that it is possible to submit to the indissolubility of marriage. 'Just see,' they tell us, 'you have no sense. My wife does not agree with me and I cannot agree with her. She will be better suited with such a one, who does not get on with his wife.

[5] ''Man and Culture,'' Crowell, 1923, p. 161.
[6] *Reports of the Cambridge Anthropological Exped. to Torres Straits,* Cambridge University Press, 1912, Vol. IV, p. 1.

Why then, do you wish us four to be unhappy the rest of our days?' "[7]

"An old chief," writes F. E. Leupp, "once expressed to me his deep concern because a missionary had warned his children that they would be punished after death if they broke the Sabbath with their accustomed games, yet he had seen with his own eyes a missionary playing tennis on Sunday. Another raised in my presence, with a sly suggestion of satire in his tone, the question of marriage. One missionary, he told us—referring to a visit from a Mormon apostle several years before—had four wives, and said it was good in the sight of the white man's God; the missionary who preached at the agency school had only one wife, and said that that was all right, but it would be wicked for him to marry any more; but the priest who came once in a while to bless the children had no wife at all, and said that the white man's God would be displeased with him if he took even one."[8]

To Wissler the inroads made into a long-established culture through missionary endeavors is the destruction of genuine culture; but to Caldecott it is the subsitution of a higher culture for one lower in the scale of social evolution. Speaking of the influence of missions, Caldecott says that "From one man's heart and brain have issued not only the abolition of degrading and cruel customs, but the beginnings of new industrial organisation, glimpses of science and literature, new forms of social order. And when he has been accompanied by a household a new type of domestic life has been exhibited and the family set in a new light. It is difficult to conceive that the future history of the world can never again show example after example of social elevation on so considerable a scale: important tribes in South Africa, in the Pacific, in Madagascar, and New Zealand, among the Red

[7] "First Establishment of the Faith in New France," (New York), 1881, Vol. I, p. 221.
[8] "The Indian and His Problem," Scribner, 1910, p. 296.

Indians of the North-West and the remote Esquimaux of Greenland and Labrador, have come to a new birth. So clear has been the elevation that for many of them it has meant the entry into the single world-circle now approaching completion, though for the present in the provisional and preparatory stage of being dependencies or protectorates of European empires." [9]

"Territorial expansion," according to Semple, writing from the viewpoint of a geographer, "is always preceded by an extension of the circle of influence which a people exerts through its traders, its deep-sea fishermen, its picturesque marauders and more respectable missionaries, and earlier still by a widening of its mere geographical horizon through fortuitous or systematic exploration." [10]

The trader method.—Often leading, but more generally following in the very footsteps of the missionary, is the trader, who goes to foreign lands for presumably a different purpose. The missionary goes to convert the heathen; the trader, to sell him goods. "A recent writer has said," states Wissler, "that no sooner is it announced that a new group of peoples has been found, than the trader, the missionary, and the bootlegger set out in one mad race to accomplish its ruin. This may not be a true picture, but it cannot be far wrong, for the trader and the missionary, no matter how great their enmity, work hand in hand, to spread the culture of their own kind." [11]

We have no reason to doubt the sincerity of the missionary or the trader; their purposes, and often their ideas, are different. These differences often make them antagonistic to each other, but in the long run they really work together in accomplishing the task of implanting a foreign culture. The missionary seeks to inculcate the best; oftentimes the trader

[9] Spiller, G. (Editor), "Papers on Inter-Racial Problems," King, 1911, p. 307.

[10] "Influences of Geographic Environment," Holt, 1911, p. 187.

[11] "Man and Culture," Crowell, 1923, p. 162.

implants the worst. At first the trader sells luxuries, trinkets, liquors and firearms to the natives. "The goods we sell to the natives of these [backward] countries," says J. A. Hobson, "are largely of the most detrimental kinds and of the most inferior quality." [12]

"The worst elements of our civilization," writes Dudley Kidd, "are being absorbed by the youth of the Kafir tribes. The young men on returning to their kraals from the gold-fields, or Mission Stations, or towns, refuse to submit to the old clan restraints, and decline to obey the orders of their betters, for they have lost their sense of reverence, a thing almost unheard of in olden times. The young men become lax and lawless, and are a serious peril to all order and decency in the kraal. This spurious liberty and impudent swagger are very contagious, and even the children become infected. In the olden days, for example, only men of mature age were allowed to drink beer and to smoke Indian hemp. Quite small boys do both these things nowadays, and the old people are powerless to prevent them." [13]

Nansen, writing of the effects of European contact with the Eskimo, tells us that the "worst of all is the irreparable injury which all our European commodities have done to him. We have, as I have shown, been so immoral as to let him acquire a taste for coffee, tobacco, bread, European stuffs and finery; and he has bartered away to us his indispensable sealskins and blubber, to procure all these things which give him only a moment's doubtful enjoyment. In the meantime his woman-boat has gone to ruin for want of skins, his tent likewise, and even his kaiak, the essential condition of his existence, will often lie uncovered on the beach. The lamps in his house have often to be extinguished in the winter, because the autumn store of blubber has been sold to the

[12] Spiller, G. (Editor), "Papers on Inter-Racial Problems," King, 1911, p. 230.
[13] "Kafir Socialism" (London), 1908, p. 49.

Company. He himself must go on winter days clad in European rags instead of in the warm fur garments he used to have. He has grown poorer and poorer, the delightful summer journeys have for the most part had to be abandoned for want of woman-boats and tents, and all the year round he has now to live in confined houses where contagious diseases thrive and play worse havoc among the population than they ever did before.'' [14]

Liquor, arms, and gun-powder are the chief articles which Europeans sell to the more backward peoples. ''Such a contact of whites with backward people shows Western civilisation at its worst, for the lowest representatives of that civilisation, animated by the least worthy motives, introduce among the natives the least desirable products and practices of that civilisation, while their attempt to organise industrially and commercially the tropical countries, being directed to secure the largest immediate gains without due consideration of the future, is often attended by the maximum of waste and inhumanity.'' [15]

''In another way,'' writes Caldecott, ''Christianity has been obliged to see in European extension not a component part of its activity but an antagonistic influence. The characters of many of the energetic individuals who for trade or for adventure first visited or settled in those distant lands were far from being Christian, to say the least: too frequently they diffused mischief and misery, and aroused hostility and terror wherever their sinister presence made itself felt. Christianity had to be separated from Europeanism in all sadness by Las Casas, and Xavier, and by many a missionary since their day. Even when there was no ruthless depravity there was a depressing influence requiring counteraction arising from the fact that so much of the early contact of Europeans with

[14] ''Eskimo Life,'' (London), 1893, pp. 335–36.
[15] Spiller, G. (Editor), ''Papers on Inter-Racial Problems,'' King, 1911, p. 230.

outside peoples was based simply and solely on profit from trade. In the ordinary way this was innocuous, often beneficial; but love of gold is a bad master, and the supply of noxious and destructive instruments of indulgence was too often the most profitable line of trade; while the need of labour was frequently difficult to satisfy without exploitation of the Native peoples, with fatal results. And when lands were wanted in which the Natives were *de trop* over large areas 'extermination proved easier than civilisation.' It has been no small part of the Christian propaganda to counteract these noxious influences in the past." [16]

Despite these pernicious influences, the trader furnishes the natives with clothes, furniture, literature, and other things which the missionaries have taught them to look upon as superior. "Traders," says Dr. Felix Speiser, "find a profit in the sale of clothing, and encourage its use; and missionaries (except to some extent those of the Anglican Church) do not disapprove; some even go so far as to make clothing a condition of baptism." [17]

Thus the missionary and trader work hand in hand. To increase trade the trader seeks to increase desires. The missionary promotes a change from a lower to a higher culture, thus creating new desires and stimulating trade.

While these changes are taking place the group morale of the natives is being broken down: part are followers of the old culture and part have adopted partially or completely the foreign culture; consequently, all grades of culture diffusion are found among the natives. Lord Dufferin, picturing the conditions in India some thirty-five years ago, tells us that "amongst these numerous communities may be found at one and the same moment all the various stages of civilization through which mankind has passed from the pre-historic ages

[16] Spiller, G. (Editor), "Papers on Inter-Racial Problems," King, 1911, pp. 308–09.

[17] Rivers, W. H. R. (Editor), "Essays on the Depopulation of Melanesia," Cambridge University Press, 1922, p. 31.

to the present day. At one end of the scale we have the naked savage hillman, with his stone weapons, his head-hunting, his polyandrous habits, and his childish superstitions; and at the other, the Europeanised native gentleman, with his English costume, his advanced democratic ideas, his Western philosophy, and his literary culture; while between the two lie layer upon layer, or in close juxtaposition, wandering communities with their flocks of goats and moving tents; collections of undisciplined warriors, with their blood feuds, their clan organizations, and loose tribal government; feudal chiefs and barons with their retainers, their seigniorial jurisdiction, and their mediæval notions; and modernized country gentlemen and enterprising merchants and manufacturers, with their well-managed estates and prosperous enterprises.'' [18]

The testimonials of many missionaries and students of backward peoples agree that the transition from the native culture to the culture of the white man brings destruction to old customs and traditions. Tribal and parental authorities are disregarded, religious taboos are violated, marriage bonds are broken, diseases spread, work is disdained, and a life of dissipation and decay begins. Quite often this transition robs the natives of so many traits of their culture without offering the proper substitutes that they become very corrupt or lose interest in life altogether. Professor W. C. Smith tells us that the ''contacts of the Nagas [a hill tribe in India] with the Government and the Mission have taken away many of the old practices which ministered to their desires. Head-hunting has been stopped, and in a measure the energy formerly expended here has been turned into greater sexual license. The Christians have been cut off from the various festivals where the dancing, drinking and general hilarity had a cathartic effect. On some of these festive occasions the Christians sit around and watch the performances, which are taboo to them, without having any equivalent for these activ-

[18] Quoted in ''Report on Indian Constitutional Reforms,'' 1918, p. 117.

ities."[19] Reverend W. J. Durrad, writing of the changes which are taking place in Melanesia, states that "with each generation there steals over the community a subtle apathy. There is no need in these days for the intense alertness which was necessary in heathen times if life was to be preserved. One notices that when people become Christians they do not, as a general rule, get up so early in the morning. The softer modes of life need a better environment to counteract their enervating influence."[20]

Rivers thinks the depopulation of Melanesia is due chiefly to the loss of interest in life. "In stopping the practice of head-hunting the rulers from an alien culture were abolishing an institution which had its roots in the religion of the people and spread its branches throughout nearly every aspect of their culture, and by this action they deprived the people of the greater part of their interest in life, while at the same time they undermined the religion of the people without any attempt to put another in its place."[21]

This "loss of interest forms one of the reasons, if indeed it be not the most potent of all the reasons, to which the native decadence is due."[22] Formerly they gloried in their own traditions and institutions, but now these are gone and not being fully committed to the new culture, they see no reason why they should "bring children into the world only to work for the white man."

Without doubt many native rulers and parents see in this shift from their own to a different culture their loss of authority and the general disorganized conditions which a too rapid shift brings, but they are powerless to stop it. "If," writes Wissler, "the poor benighted creatures resent the implication

[19] Smith, W. C., "The Ao Naga Tribe of Assam," copyright 1925 by Macmillan & Co., Ltd. (London), p. 193. Reprinted by permission.
[20] Rivers, W. H. R. (Editor), "Essays on the Depopulation of Melanesia," Cambridge University Press, 1922, p. 20.
[21] *Ibid.*, p. 102.
[22] *Ibid.*, p. 94.

and attempt to save their culture by suppressing these missionaries [missionaries and traders], we give them a taste of militarism.'' [23]

J. G. Grey tells us that as the European settlers came into contact with the natives in Australia that they soon began to despise them ''and to treat them more like dogs than human beings. As settlement extended the cruelties increased, and the black man's life was esteemed at no higher value than that of a kangaroo or 'possum. Indeed in Australia, and afterwards in Van Diemen's Land the gun was used indiscriminately upon blacks and kangaroos, and a day's sport consisted of a mixed destruction of man and animal. Some monsters even went farther in this inhuman and devilish process of extermination, for it has been established beyond the possibility of successful contradiction, that one of the practices often resorted to at the end of the eighteenth and far into the nineteenth century, was to lay poisoned food in places where the natives were certain to find it.'' [24]

The colonizing method. Strictly speaking, colonists are groups of people going from the mother country and settling in territory claimed by the mother country. As no country is a missionary country there is always a definite purpose in sending out colonists. The purpose may be economic or political or both. ''Every nation having colonies or external dependencies,'' writes Sir Sidney Olivier, ''acquires and holds them for the sake of benefits to its own citizens, whether as settlers, traders or investors of capital in those territories, and in so far as the sovereign nation orders the government of its colonies and dependencies, the dominant guiding factor in its policy will be the promotion of those ends. The policy of the Government in regard to native races is secondary and subsidiary. The exceptions to this rule are extremely few and such as must be considered to have been in the nature of acci-

[23] ''Man and Culture,'' Crowell, 1923, p. 162.
[24] ''Australasia, Old and New,'' Dutton, 1901, p. 24.

dents in the history of colonization."[25] "The desire," he adds, "to benefit and enlighten barbarous peoples has not, indeed, served as a sufficient incentive for the establishment of sovereignty over colonies or dependencies."[26]

The European countries are noted for the colonies which they have sent out and the spread of their culture. Through colonies and teachers the Greeks Hellenized the countries around the eastern Mediterranean. The English, Spanish, French, and Germans have established colonies in many parts of the world. Everywhere the colonists have gone they have carried their culture. A settlement of colonists forms a base for traders and missionaries, a center for the exchange of European goods for native commodities, and an area from which European culture from these centers goes on at a remarkable rate. "The handful of Spanish adventurers," says Semple, "who came upon the relatively dense populations of Mexico and Peru left among them a civilization essentially European, but only a thin strain of Castilian blood. Thus the immigration of small bands of people sufficed to influence the culture of that big territory known as Latin America."[27]

It should be remembered that although the culture of the colonists may be higher in the scale of civilization than that of the aborigines, not all of the native culture is lost. Wherever the European colonists have gone, they have taken their culture which has largely supplanted the culture of the native peoples; but the native peoples have also left an unmistakable impress of their culture upon the culture of the colonists. The culture of the United States furnishes us a good example. The Indian tribes took over certain elements of the European culture from the colonists so easily and with such rapidity that some of the Indian tribesmen were excellent horsemen before they ever saw a white man. On the other hand, the colonists

[25] Spiller, G. (Editor), "Papers on Inter-Racial Problems," King, 1911, p. 293.
[26] *Ibid.*
[27] "Influence of Geographic Environments," Holt, 1911, p. 84.

borrowed certain cultural traits from the Indians which have become firmly imbedded in our culture. The names of many of our states, counties, cities, towns, and rivers were borrowed from the Indians, and many Indian words have become part of our language. Some forty or fifty important domestic plants such as corn or maize, tobacco, potatoes, tomatoes, and peanuts have become the main source of our food supply. Many famous American dishes such as lye-hominy, succotash, roasting-ears, mush, beans, squash, and chocolate are Indian in origin. From the Indian we borrowed snowshoes, canoes, and toboggans, and even his bow and arrow still exist in archery clubs and as children's toys. From the Indian we took over almost completely the maize-tobacco-, and maple-sugar-complexes. In many sections farmers still plant corn in hills, with beans, pumpkin, and squash in between, work it by bringing the dirt up around the hill in Indian fashion; they continue to have husking bees, using a husking-pin, fashioned after those of the Indians, select their seed corn, test it, and construct their corn-cribs as the Indians taught their forefathers. Everywhere we chew and smoke tobacco like full-blooded Indians.

All this shows that cultures are not obliterated but that many elements in the culture of the aborigines are taken over by the colonists. Compromises are thus made, fusion takes place, and the life-pulse of culture quickened. Wissler says, "to drop from our own culture everything that is Indian would leave a gaping void. In other words, our forefathers did not sweep the country clear of Indian culture, for a good part of it stuck. In fact, it was only the constant and steady contact with the motherland that saved the early colonists from a more complete assimilation."[28]

The war and conquest method.—War for the purpose of conquest is perhaps almost as old as the human race. Even in our day, war and conquest often follow traders, mission-

[28] "Man and Culture," Crowell, 1923, p. 42.

aries, and colonists. History shows one long story from Neolithic times up to the present of warfare, conquests, and the fusion of cultures. "Here," says Marett, speaking of the grasslands of Asia, "is the paradise of the horse, and consequently of the horse-breaker. Hence, therefore, came the charging multitudes of Asiatic marauders who, after many repulses, broke through the Mediterranean cordon, and established themselves as the modern Turks; whilst at the other end of their beat they poured into China, which no great wall could avail to save, and established the Manchu domination. Given the steppe-country and a horse-taming people, we might seek, with the anthropogeographers of the bolder sort, to deduce the whole way of life, the nomadism, the ample food, including the milk-diet infants need and find so hard to obtain farther south, the communal system, the patriarchal type of authority, the caravan-system that can set the whole horde moving along like a swarm of locusts, and so on."[29] "The Mediterranean men," he continues, "coming from North Africa, an excellent country for the horse, may have vied with the Asiatics of the steppes in introducing a varied culture to the north."[30]

"By the end of the Bronze or the beginning of the Iron Age," writes Dixon, "the Alpine peoples had probably dominated the Highlands and largely incorporated the older Palæ-Alpines and remnants of the Mongoloids; they had come down into the valley of the Po in northern Italy, held much of France, and had sent out an arm along the coast to south-eastern Britain and the North Sea shores. Then came the great outpouring of the Baltic peoples, bursting through the encircling Alpines southward through France and Spain into Africa; across the Alps into Italy, where the population of Rome was already as fully Alpine as that of France; pouring into southern and eastern Britain. For a time the Alpines

[29] Anthropology," 1912, pp. 107–08.
[30] *Ibid.*, p. 109.

were thrown back upon themselves, but not for long. Within a few centuries Bavaria, the Rhine valley in Alsace, the Netherlands, and France were again in majority Alpine, while in the east the pressure of the Slav (whether or not originally akin to the Baltic peoples, now at least strongly Alpine) made itself increasingly felt; while from Asia new floods of Turkish-speaking Alpines and Palæ-Alpines poured into and through the Russian steppes. Today, although no striking shifts of population have taken place in Europe for centuries, the Alpine type seems to be more or less strongly the dominant one throughout all but the western periphery of the continent."[31]

"A very similar conquest [to the one taking place in Greece]," says Tyler, "on a much larger scale was being carried on in Northern Europe by the Celts resembling the Achæans in temper and spirit as if they were twin-brothers. They seem to have swarmed out still earlier and in greater numbers. Before the close of the Neolithic period we find signs of their culture in the Rhine valley. During the Bronze Age they seem to have overwhelmed England and northern France. They conquered Bohemia and parts of southern Germany and went down into northern Italy. In the early Iron Age they raided still farther, but were pushed back finally by the Romans in the south and the Teutons in the north and ground between the upper and the nether mill-stones.

"The story of the dawn of history seems to be mainly a chronicle of similar migrations, raids, invasions and conquests; every new invader crowding the preceding ruling race down into the mass of common people. This results in new blends and variations which were later to express themselves in national characteristics. But the process was slow, and the subjected people were usually left for a long time unchanged in their deeper character by the new super-imposed stratum."[32]

[31] "The Racial History of Man," Scribner, 1923, pp. 511–12.
[32] Tyler, J. M., "The Coming of Man," Marshall Jones, 1923, p. 67.

"Another great cross-fertilization," says Ross, "occurred after Alexander's conquests and colonizations in Southwestern Asia and in Egypt had brought into closest contact the two great currents of ancient thought and culture. Much of the progress of civilization during the succeeding centuries records the conflicts and final fusion of the permanent elements in each." [33]

Modern European nations furnish us many examples of attempts to spread their culture by war and conquest. Spain, England, France, Portugal, and Holland planted colonies in the Americas, and by wars of conquest with the Indians and each other divided up the continents. By militarism, laws, language, customs and traditions each country stamped its culture on its colonies; but most of the colonies became rebellious, won their freedom, and by fusing their cultures with certain elements of the Indian culture have built up cultures differing in a number of respects from those of the mother countries.

The militaristic flag followed the missionary, trader, and colonist into Africa; Africa was divided among the European powers without any regard for the wishes of the natives. By militarism, courts, laws, language, and other means enough European culture has been implanted in Africa to place the Africans in turmoil. An attempt was made to divide Asia and England came out of the skirmish with turbulent India. England has been very successful with her traders, colonists, wars and conquests and has gathered to herself so many colonial possessions and protectorates that her lawn is so full of quarreling children, that there can be no peace in her own house. The different European nations are trying to stamp their culture upon their colonies in Africa, Asia, and elsewhere. This is leading to a fusion of European with native cultures which is causing the natives to become exceedingly

[33] Ross, E. A., "Foundations of Sociology," copyright 1905 by The Macmillan Company, p. 237. Reprinted by permission.

restless under European rule, and which will probably lead to such fierce struggles for independence that the European nations will lose more in wars than they have gained in economic exploitation.

The European nations have ever quarreled and fought over provinces containing a few acres of land, and have met and divided countries and transferred provinces without consulting the people composing them. Poland was the bone of contention between Russia, Germany, and Austria until the final division. Alsace-Lorraine has furnished and still furnishes France and Germany an excuse for war. A few petty provinces fostered animosity between Russia, Rumania, and Austria-Hungary, and between Austria and Italy. The upheavals are so spasmodic in the Balkan States that no one seems to be able to tell the real cause of each outburst. Each time a province is transferred from one nation to another a desperate effort is put forth to stamp out every semblance of the former country and to make the province completely over into the mold of the new country. The usual method is to make the language of the country to which the province is assigned the official language, to forbid the use of the language of the former country in courts, schools, and churches, and to reorganize the whole economic and social systems according to the pattern of the possessing country. The birth of numerous small nations following the World War, each of which is but an excuse for future wars, shows the futility of such a method.

CHAPTER X

THE UNORGANIZED DIFFUSION OF CULTURE

As preliterate groups increased in size, they became too large for the local territory and split up into smaller groups, some going in one direction and others in another. We may assume that each group had its culture which it took with it; for it is impossible to think of human groups existing without culture. As these groups separated from the mother groups, they wandered into new territory where they were influenced by geographic conditions and perhaps by coming into contact with other groups who possessed a different culture. These things doubtless caused a new or different culture to develop. New culture centers thus arose from which culture was diffused.

It would appear that there are certain limitations to the diffusion of some culture traits. The Minoean culture centered in the Island of Crete, and being an insular culture spread only along the shores of the Mediterranean Sea. The Eskimo built up a culture complex so intricately connected with the seal that it was not applicable to any other animal, and, therefore, spread no farther than the habitat of the seal. The localization of some other cultural traits, as the famous Chilkat blanket of the Alaskan coast, cannot be satisfactorily explained. Other cultural traits spread quite rapidly over wide areas. Culture among preliterate peoples was spread by only one method—primary contacts; but culture among literate people is spread by both primary and secondary contacts.

Primary contacts.—The spread of culture by primary contacts is from individual to individual, or from group to group

as they come into personal contact with each other. Culture can thus be diffused only so rapidly as these contacts occur. Primary contacts are perfected by four chief movements of people—tramps, tourists, migrants, and immigrants.

1. *Tramps.* There are two chief classes of tramps today: one which is thought of as the ordinary tramp, hobo, or bum, and the other which we designate "auto-tramp." No one knows how many tramps there are in the world, in the United States, or in any city. Nels Anderson [1] estimates there are at least 1,000,000 in the United States, and between 30,000 and 75,000 in Chicago. He thinks that between 300,000 and 500,000 of these migratory men visit Chicago every year. Most tramps use railroads as their means of conveyance. Chicago, then, being the largest railroad center in the world, would have the largest tramp population of any city in the world. It being the gateway to the West, many tramps drift there to be "shipped out" with labor crews.

From the economic point of view the tramp is considered a parasite, and indeed many of them are non-workers and gain their food by begging and thieving. But a large number support or partially support themselves by seasonal work and by doing odd jobs. From the cultural standpoint the tramp has hardly been considered. Yet tramps have a society largely of their own, composed of men with an absence of women and family life. They are mostly wanderers with an anti-capitalistic attitude and a keen desire to live with as little work as possible. They have a college which a few attend, a magazine, and several labor and social organizations. Tramps read widely from modern magazines, especially labor journals. Many desire to become authors and some compose songs and ballads, write stories and occasionally a book. Some are very well educated; and those who are good speakers often take special delight in "airing" their views as soap-box orators. Tramps have an ever-changing jargon

[1] "The Hobo," University of Chicago Press, 1923, Chapter I.

which the youth soon acquires after "going on the road." Occasionally some of this jargon finds its way into magazines and books and often becomes the common expressions of the street. Class distinctions among tramps are usually based on the ways of securing a living, on race, and on age. Most tramps are native-born Americans and few racial distinctions are made in the northern states. The ethical code of tramps is fairly strict and definitely enforced. Discussions are free and open but every man's past is his own secret.

Tramps come into contact with non-tramp population through seasonal employment; through such organizations as the Industrial Workers of the World, the United Brotherhood of American Laborers, the Migratory Workers' Association, and the Ramblers; through their soap-box orators, restaurants, missions, lodging houses, and other places of business in sections of cities where tramps assemble; and through their literature. Undoubtedly there is a fusion of tramp culture with non-tramp culture through these various contacts.

The tramp's usual means of transportation is beating his way on the railroad or being "shipped out" with some labor group. According to estimates tramps cost one railroad—the Southern Pacific—over $20,000,000 annually.[2] Since the advent of the automobile a new kind of tramp, known as the auto-tramp, has appeared. Usually from three to five men, a man and his family, or even as many as fourteen, including members of several families, secure a Ford, or some other cheap car, and make it practically their home. They roam the country in almost Gypsy fashion, usually doing as little work as possible. The auto-tramp is becoming more and more in evidence each year, and is building up a peculiar tramp culture which he diffuses widely.

[2] Compare Nylander, T., "The Migratory Population of the United States," *Am. Jour. of Sociol.*, Vol. XXX, September, 1924, pp. 129–53. See also Parker, C. H., "The Casual Laborer," Harcourt, 1920.

2. *Tourists.* The tourists compose another group of travelers who use railroads, automobiles, and ships as a means of conveyance. They are like the tramps in that they are giving expression to what Thomas calls "the desire for new experience." They differ in that tourists travel as a better class and pay for their transportation. Tourists in both their own country and in foreign countries visit places of interest, converse with important people, and discover something of how the people in the sections or countries visited live, think, and behave. It might be added here that the lack of appreciation on the part of tourists for the culture in certain countries has made tourists less welcome in these countries. These travelers return to their own country or locality with a broadened outlook on life, a different attitude, and new ideas to diffuse among their friends and acquaintances. The United States is known as a tourist nation and since the advent of the automobile almost every section has people making long or short tours. These return to their homes with new ideas which tend to break down the "crust of custom" and open the way for cultural advancement. There are thousands of people leaving the United States each year and touring in foreign countries. These are generally people of influence and means and many are seeking new ideas. They observe the people, their social, economic, political, and religious life wherever they are traveling; return home and give us the benefits of their experience. Tourists have been an essential element in the spread of culture in the United States, but, as yet, little attention has been given to this phase of their activity.

3. *Migrants.* Migration is of two principal kinds: migration from one section of a country to another, as a farmer moving from the eastern part of the United States to the west, or from one community to another and the movement from rural districts to urban centers.

(1) THE MOVEMENT TO A DIFFERENT SECTION. It is generally agreed that inter-community and inter-state migrations have

been increasing rapidly during the last decade. According to the Fourteenth Census 22.4 per cent of all farm operators had been on the same farm from two to four years, while 25 per cent had been on the same farm one year or less. Stewart's [3] study of tenants led to the conclusion that 26.9 per cent of these changed farms each year. In 1922 the Department of Agriculture estimated that one out of five farmers moves each year. What per cent of these shifts are from one community to another cannot be stated. According to a study [4] covering ten areas in Nebraska for the years 1911–1920, 64.9 per cent of the farms changed operators. There were about three shifts within the community to each one between communities.

According to the last census 16.6 per cent of the Negroes and 22.4 per cent of the native whites were residents of other than their native states. Hart [5] estimates that 890,000 shifted state residences for the decade ending 1910. In his study of farm families of Nebraska, Rankin [6] found that two-fifths had changed states. Vogt [7] estimates that 25.5 per cent of the rural population are dwelling outside their natal state.

Migration, like immigration, represents a kind of crisis in the individual's life. It indicates a willingness to part with relatives and friends, to break with traditions and customs, and to make adjustments to new conditions. One of the chief causes for the progressiveness of the West is the continual migration of the restless, progressive people from the East. In the West the Southerner and Northerner, the Easterner and the Westerner meet and mingle; gradually traditions are forgotten, customs are broken, cultures are diffused, and

[3] Compare "Farm Occupancy, Ownership, and Tenancy, and When Do Tenants Move," *Division of Land Economics, Bureau of Agr. Econ., U. S. Dept. Agr.*, April, 1923.

[4] Compare "Nebraska Farm Tenancy," *Bull. 196 Agr. Exp. Station, University of Nebraska*, October, 1923, pp. 19–20.

[5] Compare *University of Iowa Studies in Child Welfare*, Vol. 1, No. 7, pp. 40, 41.

[6] Compare "The Nebraska Farm Family," *Agriculture Experiment Station, University of Nebraska Bulletin* 185, p. 20.

[7] Compare "Introduction to Rural Sociology," Appleton, 1917, p. 140.

the road opened to progress. Without doubt the West lacks certain refinements of the East, but it is to the West that many look for real advancement.

(2) THE MOVEMENT TO CITIES. Urbanization is a process that has been going on for many years. It is increasing rapidly and we are powerless to stop it. The population of the twenty-five largest cities of Europe was 3,215,000 in 1815 and 22,276,000 or an increase of almost 600 per cent by 1915. According to Rossiter[8] these twenty-five European cities increased as follows:

Country	Number of Cities	Population		Per Cent of Increase
		1810–15	*1910–15*	
Great Britain	10	1,424,000	11,630,000	716.7
France	9	1,076,000	5,023,000	366.8
Germany	1	197,000	2,071,000	951.3
Austria	1	231,000	2,150,000	830.7
Belgium	1	40,000	313,000	682.5
Italy	2	222,000	964,000	334.2
Switzerland	1	25,289	125,520	396.3
Total	25	3,215,289	22,276,520	592.8

In 1856 France had a population of 36,000,000, about 26,000,000 of which lived in rural districts. By 1911 her population was 40,000,000 but only 22,000,000 were rural inhabitants. Her rural population decreased while her urban population increased from 9,800,000 to 17,500,000. In this same period her cities of 10,000 or more doubled in population. In 121 years the population of London increased from 864,000 to 7,476,000, Paris from 547,000 to 2,863,000, Vienna from 232,000 to 1,842,000, and Berlin from 172,000 to 4,000,000. In 1600 Europe had only fourteen cities with a population of

[8] Compare "The Adventure of Population Growth," *American Statistical Association*, Vol. 18, March, 1923, p. 573.

100,000 or more, but in 1920 she had one hundred cities with 200,000 or more.

In the United States, as in Europe, the population has flown toward the cities. In 1800 we had five cities with a population of 10,000 or more. These contained four per cent of our population. Now over one-half of the population of the United States live in urban districts. About one-fourth of our population live in 68 cities and one-tenth in New York, Chicago, and Philadelphia. Some cities show an exceedingly remarkable growth. For example, Detroit quadrupled her population within the last two decades. While Detroit is the only city having a population of 100,000 or more that doubled her population in the last decade, twenty-three other cities with 25,000 or more inhabitants increased by over 100 per cent. The question arises: What causes some cities to grow so rapidly? Automobiles made Detroit, rubber made Akron, natural advantages suitable for commerce made New York and Chicago; while publicity and climate made Los Angeles.

While over one-half (51.4 per cent) of the population of the United States is classified as urban, we have an immense amount of territory where a large per cent of the inhabitants live in rural districts. For example, about 77.6 per cent of the population of the East South Central States is rural, 71 per cent of the West South Central States, and 69 per cent in the South Central States. If we add Missouri to this list and omit Delaware and the District of Columbia, 74 per cent of the people of this large territory live in rural districts. On the other hand, over one-half of the population of fourteen states is urban. Illinois, Massachusetts, New York, Ohio, and Pennsylvania contain one-half of our total urban population. Mississippi is 87 per cent rural; while Rhode Island is 97.5 per cent urban.

Something of the rapidity of the movement of population is shown by the fact that only about 25 per cent of the people in Berlin have parents born in that city; in New York the

percentage is not much over 10 per cent. How is this to affect population? It has been asserted that the country child has natural conditions conducive to a strong body and mind, that he has more time for observations than the urban child, and that therefore he should think more deeply. On the other hand, rural communities are more or less isolated; while cities are "melting-pots." In the city is the coming together of every race, creed, tradition, and custom. These are exchanged, modified, and supplemented; out of this psychic mass arise new and progressive ideas—in short, many elements that tend to produce a new culture. If one considers culture from the viewpoint of "attitudes, views of life, and specific manifestations of civilization that gives a particular people its distinctive place in the world,"[9] one may say that cities contain the highest elements of culture and that any section of country devoid of cities lags in culture. It is in the urban districts that the highest cultural advantages are offered and it is to the cities that we must look for cultural advancement and the production of our great men. According to a study made by Professor S. S. Visher of *Who's Who in America* for 1922–1923, "the large cities yielded 2.1 times as many notables as the average for the nation, the small cities 2.3 times as many, villages three times as many, and suburbs four times as many, but the strictly rural sections (farms) yield only about one-third the nation's average." "In proportion to population, the cities contributed nearly six times as many notables as did the farms, whereas villages contributed nearly nine times as many and suburbs nearly eleven times as many as the farms."[10]

4. *Immigrants.* Shifts in population distribution among preliterate peoples were mainly by simple wanderings. This was followed by stages of migration and mass movements.

[9] Sapir, E., "Culture, Genuine and Spurious," *Am. Jour. Sociol.*, Vol. XXIX, January, 1924, p. 405.

[10] *Who's Who in America*, 1924–1925, p. 29.

With the discovery of the new world, Australia, and New Zealand, and with the development of better means of ocean transportation, colonies were established in the Americas, Australia, New Zealand, Africa, and elsewhere. This was followed by the immigration stage of population movement. Immigration, then, is a comparatively modern means of population distribution, and with the development of modern means of transportation and communication, and a knowledge of the different countries it has become a world movement. The American Republics, Australia, New Zealand, and Africa have become the chief gainers while the European countries have been the chief losers by the immigration movement. Immigration usually represents a shift of population from old, thickly settled countries with few opportunities, to new, sparsely settled countries, with many opportunities. Yet over-population, of itself, as Carr-Saunders [11] points out, does not lead to immigration. In fact, the contrary seems to be true. Stoddard [12] would have us believe that Asia is full of hungry colored peoples ready to overrun all the white colonies, but the fact is that for thousands of years the Chinese and Indians have showed little inclination to immigrate. Immigration appears to result from a keen desire to better conditions. Over-population kills this idea, causes people to accept a lower standard of living, and to lose the keen desire to better their conditions. Chinese and Indians prefer to live and die in their native countries, even though they may face starvation, rather than leave for some foreign country. "At the same time," thinks Oldham, "it is no doubt true that as the world becomes increasingly knit together by more rapid communications and commercial intercourse, enterprising members of different races will more and more tend to seek a livelihood where economic opportunity is greatest. If

[11] Compare "The Population Problem," Oxford University Press, 1922, pp. 297–304.

[12] Compare "The Rising Tide of Color," Scribner, 1920, p. 9.

no barriers existed economic forces would be likely to lead to a growing intermingling of races." [13]

Immigration creates economic, social, political, religious, and biological problems, and most people in the United States have been trained to be prejudiced against immigrants, especially those from southern and southeastern Europe, and Asia. There can be no doubt that an open immigration policy creates many problems and some undesirable people will come in; but if immigration indicates a keen desire to become economically independent in a legitimate way and a willingness to make adjustments, then any immigrant is worthy of consideration. "Men are not equal," says Oldham, "in their capacity to serve the community, nor are they equal in their needs. But they are equal in the possession of a personality that is worthy of reverence. They are equal in the right to the development of that personality, so far as may be compatible with the common good. And in the determination of what constitutes the common good, they have an equal claim that their case should be heard and weighed and that the judgment should be disinterested and just." [14]

Between 1820 and 1920 about 33,655,000 immigrants landed in the United States. Some 7,000,000 of these were Germans, 5,000,000 Irish, 4,000,000 English, 2,500,000 Scandinavians and different numbers of all the other various nationalities and races. Now, what does all this mean? Many problems, of course, especially if we take a short-sighted view of the matter. But what about the ultimate results? We point out that the English furnished us a social foundation and a language rich in Greek, Latin, and Anglo-Saxon culture. We point to the individualism, conservatism, self-control, fastidiousness, and intellectual independence of the English; to the loyalty, liberalism, intellectualism, and thoroughness of the

[13] From "Christianity and the Race Problem," by J. H. Oldham. Published by George H. Doran Company, 1924, pp. 130–31.
[14] *Ibid.*, p. 92.

German; to the wit, congeniality, and adjustability of the Irish, with their fierce determination to rule our cities; to the pioneering Scotch, who are men of action; to the admirable qualities of the other North European groups; and to the illustrious men these groups have contributed to the United States, with a great deal of pride. We feel that we have the right of possession of the United States, and have a certain degree of prejudice against the newcomer from any of the northeastern European groups, but we are more accustomed to them and do not treat them with the same degree of contempt that we do immigrants from Asiatic countries.

The Slavs represent a more recent immigration than the northeastern European groups, and prejudice against them is more widespread. We forget the great artists, the great musicians, and liberal leaders the Slavs have produced; we forget John Huss and the great culture which at one time centered around the University of Prague; we forget the love of freedom of action of the Poles, the love of free thinking of the Bohemians, and the many solid virtues of all the Slavic peoples and emphasize their short-comings and classify them as undesirable.

We are more tolerant of the south European than we are of the Slav. But we speak of their low standard of living and seem to think they are so low in their standards that they cannot appreciate American culture. We forget that Greece and Rome were centers of world culture when the Teutons were bands of barbarians; we forget that even the south European peasant child often shows an understanding and appreciation of music, drama, and art that the average American does not possess.

The Jews have long been persecuted in Europe and their position is not altogether a happy one in the United States. They are called "Christ killers," and persecuted because of their religion. Yet they gave to the world the first monotheistic religion, contributed the Old Testament, most of the

New Testament; Jesus himself was a Jew. In spite of persecution, the Jews have never failed to produce loyal statesmen, great financiers, outstanding scientists, musicians, economists, social workers, and religious leaders of world renown in the different countries where they have dwelt.

The most violent reaction to immigration in the United States has been against Asiatics. Many kinds of charges have been brought against these people, most of which are without foundation. We forget the wonderful civilizations developed by these peoples and our indebtedness to them, and we overlook the admirable qualities portrayed by the Chinese, Japanese, and Hindus. These people show great respect for parents and for law and order, for social solidarity and social obligations, and portray patience and endurance which might make a distinct contribution to Western restless individualism.

We need to learn that no one group has developed its culture alone, that no one culture contains all that is best in the world, that each advanced culture has some admirable qualities, and that each culture can borrow from other cultures to its own enrichment. John Murphy says that ethnologists have recently observed "that a collision of races, whether as between an invading horde and the native inhabitants, or between successive waves of invaders, appears often to be followed by an advance in culture, as though an impetus to intellectual progress were given by the conflict. We have already noted the observation of Darwin that admixture of races, in other biological spheres than the human, seems to produce an accession of vigor in the offspring. It provides a distinct impulse to variation; and variation in the case of the human animal has set its current strongly towards the evolution of mind. It would not be surprising, therefore, if admixture of peoples through migratory invasions should convey an impetus in the direction of advance in intellectual power, culture and civilization." [15] F. J. Teggart thinks that "human advancement fol-

[15] "Primitive Man," Oxford University Press, 1927, pp. 279–80.

lows upon the mental release, of the members of a group or of a single individual, from the authority of an established system of ideas. This release has, in the past, been occasioned through the breaking down of previous idea-systems by prolonged struggles between opposing groups which have been brought into conflict as a result of the involuntary movements of peoples. What follows is the building up of a new idea-system, which is not a simple cumulation of the knowledge previously accepted, but the product of critical activity stirred by the perception of conflicting elements in the opposed idea-system." [16]

The United States has advanced rapidly and no small amount of this is due to the fact that we have had immigrants coming from many countries and representing all the racial groups, each contributing a certain portion to our culture. This co-mingling of the different groups with their different cultures has greatly aided the West and North. In the Southern States immigrants are few, old ideas, habits, customs, and traditions remain; therefore, advancement is slower. It would appear that a heavy immigration would be a great factor in hastening the psychic as well as the material development of the South.

Secondary contacts.—As preliterate groups developed into literate groups they developed means of spreading their cultures, other than depending upon face-to-face contacts. Today contacts are furthered by literature, telephone, telegraph, and radio. Literature is by far the most important instrument of culture spread by secondary contacts and in a certain sense includes the other means.

The study of languages has for many years been one of the main requirements in high school, college, and university curricula. The languages studied have usually been Latin, Greek, French, German, and English. As no one can study a lan-

[16] "The Processes of History," Yale University Press, 1918, pp. 151–52.

guage and literature of a people without absorbing some of their culture, the cultures of these groups have had a better opportunity to become widespread than the cultures of some other groups. Latin, Greek, German, and French are gradually losing their prestige while English and Spanish are gaining rapidly. English is now being studied in the schools in many parts of the world and is required in the upper grades in a number of countries, such as Mexico and Japan. The English-speaking people have an unexcelled opportunity to spread their culture today. Mr. E. H. Babbitt, writing in 1908, told us English was spoken by 136 million people, or 27.2 per cent of the population of the globe. German, the nearest competitor, was spoken by only 82 million. The World War decreased the importance of German and increased the prestige of English. Great Britain and the United States have colonies in many parts of the world and these colonists are rapidly learning to speak the English language. English has another advantage not possessed by any other language; its vernacular is so uniform that although people may grow up on opposite sides of the world, when they come together they can readily understand each other. Babbitt tells us that in 1908 English led "all other languages in the number of its readers. Three-fourths of the world's mail matter is addressed in English. More than half of the world's newspapers are printed in English, and as they have a larger circulation than those in other languages, probably three-fourths of the world's newspaper reading is done in English." He thinks "that, within the century English will be the vernacular of a quarter instead of a tenth of the people of the world, and be read by a half instead of a quarter of the people who can read." [17]

There is evidence that English will become a world language. While the English literature is perhaps no richer than certain other literatures, it has an opportunity to be-

[17] "The Geography of the Great Language," *World's Work*, Vol. XV, February, 1908, p. 9907.

come so. It is spoken as a vernacular in so many parts of the world that its cultural content is continually being enriched. The English-speaking colonies in the different countries are continually coming into contact with different peoples and taking over certain cultural elements which find their way into the literature and then spread rapidly to other English-speaking peoples in other sections of the world. Furthermore, English has become such an important language, that the best of the literature of other languages is quickly translated into English, thus enriching the English culture and spreading it quickly through the medium of English.

Amalgamation and culture.—While amalgamation is not essential for cultural advancement as the recent history of Japan shows, it would appear that ultimately more fundamental changes and more rapid advancements occur when cultural spreads are accompanied by amalgamation. We have plenty of examples of groups who, either because of prejudice or oppression, have restricted their contacts with outside groups, retained their customs, glorified their ideals, and refused to amalgamate.

Among the African tribes, East Indians, and Polynesians, market places have grown up. These are usually located on border territory, sometimes in the midst of the forest, and a natural zone with definite laws governing this territory is established. At many of these markets the trading is done in secret. One tribe places its goods at the appointed place, returning the next day to see what is offered in exchange. Other markets have go-betweens who act as inspectors and make the exchanges.

The South African Boer presents a rather pathetic picture of a group so afraid of amalgamation that "My children never forget you are white men!" and "Do always as you have seen your fathers and mothers do!" became the watchcry. As a result the Boers have retained their identity for

some two hundred years and certain elements of their culture, which were current in Holland in the sixteenth and seventeenth centuries, continue to persist.

Oppression has caused many groups, namely the French Canadians, Poles, Armenians, Albanians, Koreans, Bulgarians, Greeks, and Serbians, to become more compact and thus refuse to absorb the culture of the dominant group or amalgamate with them. Political oppression caused the French Canadians to remain French and lag a couple of centuries behind. Militarism resulted in a divided Polish territory with many dead Poles, but it failed to make Austrians, Germans, or Russians out of living Poles. Austria tried to force her people of seventeen languages and thirty-three religious sects into one homogeneous nation but failed.

When the human race started, it began to develop a culture and as it spread over the world it developed cultural centers which were springs of originality. These were not completely isolated and doubtless each cultural center was influenced by other groups through contacts and amalgamation. "Looking at culture as a whole," writes Wissler, "we note super-centers, or great centers of influence, as Egypt, Crete, Athens, Yucatan, Peru, etc. And something like this is observable among the outlying primitive centers. In such a perspective one comes to a nearer view of culture at work. What we see is strikingly analogous to volcanic activity, these different centers appearing as so many crater cones of varying diameter, all belching forth the molten lava of culture, their respective lava fields meeting and overlapping, but, as in true volcanoes, the lavas differ one from the other and from time to time, and each crater contributes something new to the growing terrain. Again craters become extinct and new ones break forth in between. But the important point is that in all of them once burned the fire of originality. No view of culture recognizing but a single crater from which all is

supposed to flow, can stand before the situation as now revealed." [18]

Amalgamation undoubtedly was an important element in the building up of these culture centers. The Neolithic culture apparently started in relatively compact and isolated groups in Asia. From Asia it spread chiefly through migration around the Black and Caspian Seas into the Caucasus Mountains and the grasslands of southern Russia, reaching northern Europe about 8000 or possibly 10,000 B.C. About 2000 B.C. the domesticated horse, which evidently evolved in America, gave them an added means of travel. Communications between these sections and Crete, Greece, and Troy gave added impetus. The Mediterranean group spread through France and into England. There was a seepage into Germany from Russia and Poland, and broad-headed people appeared in Europe for the first time, settling in the foothills of the Alps and the highlands bordering the Rhine and Rhone. The so-called Aryans swarmed out from their homes and all these different groups met, mingled, and amalgamated in central Europe. The eastern Aryans continued their march into Persia and even into India, while the western Aryans spread over practically all of Europe. Their invasion "of Greece must have been like the arrival of a party of cowboys in a community of pacificists. They 'painted the town red'. . . Their heroes married the daughters of the rulers of the land and became kings. The changes were quick, thorough and not altogether for the worse.

"These roving bands of emigrants from the Aryan homeland were composed mostly of the young and vigorous. . . They had broken and cast off all the old tribal fetters and restraints and enjoyed their freedom to the full." [19]

The Tigris-Euphrates and Nile valleys developed magnifi-

[18] "Man and Culture," Crowell, 1923, pp. 156–57.
[19] Tyler, J. M., "The Coming of Man," Marshall Jones, 1923, p. 66.

cent cultures, and disregarding the civilizations of India, China, and the lesser cultural centers of Mexico and Peru, the Mediterranean basin was the center of a high culture from Minoan days till the end of the Middle Ages. Dixon thinks the amalgamation of the Caspian and Mediterranean types of people produced the Minoan culture of Crete, the renowned civilization of Greece, the Indian philosophy, and the militant religion of Islam. He says the blending of "these two types, but with considerable elements of the older Proto-Australoid and Proto-Negroid were the Baltic peoples, that 'Nordic' race which wrecked the power of Rome, as their Caspian-Mediterranean kindred, the Hyksos, had conquered Egypt, or the Kassites had plundered Babylon, or the Persians had overthrown Assyria. Lastly, in modern times, it was largely the adventurous daring, the genius and hardihood of these breeds which were responsible for the discovery, conquest, and colonization of America by Europe, an event which, in the development of the human race as a whole, was destined to be of great significance." [20]

Dixon contends that the "Babylonian civilization grew out of the blending of the supposedly Alpine Sumerian with the Mediterranean-Caspian Semitic peoples who seem long to have been in occupation of the Mesopotamian plains; in Greece, before the florescence of Hellenic culture, the earlier Mediterranean population was reënforced by the immigration of the probably Alpine Dorians; Rome rose to greatness only after the older Mediterranean-Caspian people of Latium had been half dominated by Alpines coming southward from the valley of the Po and the region where the older Etruscan culture had its centre. In the East Chinese civilization had its rise in an area where strong Caspian elements were absorbed by the incoming Alpine folk; lastly, the marvelous development of modern European civilization has occurred in that region in which Alpine, Mediterranean, and Caspian have been more

[20] "Racial History of Man," Scribner, 1923, p. 510.

completely and evenly fused than elsewhere in the world. . . . Is it mere chance that it was in the north of Italy, in Tuscany and the valley of the Po, where the influence of the Caspian-Mediterranean immigrants was strongest, that the Renaissance began; that in Germany it was in the south where the Baltic peoples had in large numbers blended with the older Alpine and Palæ-Alpines, rather than in the north where such amalgamation was less clear, that the revival of culture had its start; that many of the forerunners and leaders of the Reformation, such as Huss, Luther, Zwingli, Calvin, all came from regions where the fusion of types must have been vigorously going on? The complexity of the causes underlying all such great movements is, it need hardly be said, very great, yet I cannot but feel that, among the many potent factors which have determined or directed the rise of modern European civilization, this one of the fusion of Alpine with Mediterranean-Caspian elements has an important place. That the contact of two different peoples often produces a stimulating effect upon culture has of course often been noted; the point which I would make here is that this stimulation seems to be at its maximum when the peoples belong to the Alpine and to the Caspian or Mediterranean types.'' [21]

In the United States we have the coming together of representatives of all the races and groups in the world. The Caspian type is represented by many Indian tribes of North and South Americas and by the Eskimo of North America. Most of the immigrants have been of the Nordic, Alpine, and Mediterranean types, and here as nowhere else in the world is there such a gigantic blending of the Alpine-Caspian-Mediterranean racial types. What is to be the result? Marett says that ''there are whites and blacks and redskins in the southern portion of the United States of America, having at present little in common save a common climate. Different races, different cultures, a common geographical situation—what net re-

[21] ''Racial History of Man,'' Scribner, 1923, pp. 514–15.

sult will these yield for the historian of patient, far-seeing anthropological outlook? Clearly there is here something worth the puzzling out. But we cannot expect to puzzle it out all at once.'' [22] Certainly one lifetime is entirely too short a period to judge the results of the fusion of racial types. After different racial types come together prejudices generally develop, gradually a hybrid type appears and becomes the dominant group. Amalgamation then occurs more readily, culture blends more easily and a higher culture develops. If what has apparently occurred in other lands takes place in the United States, we may expect this country to add a mountain to the peaks of culture in some two or three thousand years. ''Two thousand years perhaps elapsed,'' writes Dixon, ''from the time when the Alpine peoples began to blend with the older Mediterranean folk of Italy, before the composite population on the Tiber made the name of Rome feared and respected throughout the Mediterranean world and beyond; and many centuries of fusion were required after the period of the völkerwanderung before some of its results became apparent in the Renaissance.'' [23]

[22] ''Anthropology,'' Holt, 1912, p. 97.
[23] ''The Racial History of Man,'' Scribner, 1923, p. 517.

BOOK II

THE PROBLEM OF NUMBERS

PART IV

THEORIES OF POPULATION

CHAPTER XI

PRE-MALTHUSIAN THEORIES OF POPULATION

So far as we are able to ascertain every tribe, every race, every nation has had some kind of population theory. The practices have at various times been influenced by the food supply, religious beliefs, wars, general economic and political conditions.

Population theories of preliterate peoples.—Many writers have assumed that preliterate tribes have no definite population policies; while others have pointed to existence of polygyny and polyandry as proof of the existence of such policies. It would appear, however, that such customs as polygyny and polyandry are more for the gratification of sex and social status than for an increase or decrease of population. Many tribes have a religious veneration for the reproductive organs and seem not to wish to curb the sex desire for any considerable length of time. On the other hand, as is shown in another chapter, they have many ideas regarding population and many ways of keeping the number limited. The all-important question with them is how many can be supported; their theories usually vary according to the food conditions. If the tribe is favorably situated, or in war, it is not averse to a rapidly increasing number. When any tribe secured and wished to maintain possession of fertile areas, "their learned men," writes Harold Wright, "have naturally taught them that an

increasing population was an unmixed blessing, since it provided more hands to till the soil and more soldiers to defend the fields."[1] On the other hand, when a tribe found its area which was already fairly populous, definitely limited, "a wise man would rise and point out that the means of subsistence were limited and that a further increase in the population must inevitably involve hunger and misery, unless an outlet could be found in other lands."[2]

The different tribes have various practices which not only tend to keep down the numbers, but to be an eugenic measure, because they eliminate the weak mother and weak child. Carr-Saunders thinks the eugenic effect is merely incidental, but it appears that part of it is purposeful. The fact that they kill the weak and crippled children, and eat the flesh of strong animals, believing in the transferring of this power, seems to show that they have some eugenic ideas. Without doubt the type of life they live tends to make them a hardy group.

Population theories of the Greeks.—With the early Greeks as with all other people in a similar state of culture, the individual was so related to the state that as a separate unit he did not exist. He was a "political animal" and must surrender his desires and wishes to the will of the state. The city states of Greece were frequently in war. This caused them to formulate definite policies for the rearing of strong citizens.

Every Spartan was expected to marry and produce healthy citizens for the state. Bachelors and celibates were punished, despised, and suffered many indignities. Marriage was an institution of the state and had little religious, natural, or personal significance. Its purpose was to produce strong, sound citizens for the state. "Marriage," says Reuter, "was made compulsory. The unmarried man suffered the penalties

[1] "Population," Harcourt, 1923, p. 2.
[2] *Ibid.*, p. 2.

of positive law as well as the minor indignities of popular insult: he labored under numerous political and legal disabilities and was the butt for the disrespect of the Spartan youth."[3] "The laws," writes Stangeland, "would not permit the continued postponement of marriage, nor would they permit marriage according to individual inclinations, unless, of course, these agreed with state regulations. The prime requisite was that a marriage should be good in the sense of the expressed purpose of the law; that is, it should be one likely to produce children of sound mind and body."[4]

Athens differed from Sparta in that her laws were less rigid and that public sentiment was less crystallized in regard to marriage. The laws against celibacy and the unpopularity of bachelors, however, show that each citizen was expected to have a fruitful marriage. The Athenian youth was given more liberties in selecting his mate, more opportunities for personal development, and more freedom in his home life than the Spartan youth.

Both Sparta and Athens permitted exposure of crippled and weak children; each permitted abortions and each believed in eugenic marriages. They seem to have had some fear of over-population and recommended colonization and late marriage when necessary.

With *Plato* all personal desires were to be subordinated to the good of the state. Personal preferences and desires had little to do with marriage since through it healthy citizens were to be produced for the state. He believed that in order to have strong citizens only those of the best physique were to be permitted to reproduce. In his "Republic" he would have women between the age of twenty and forty and men between the ages of twenty-five and fifty-five marry. In his "Laws" he would make marriage compulsory for women

[3] "Population Problems," Lippincott, 1923, p. 41.
[4] "Pre-Malthusian Doctrines of Population," Columbia University Press, 1904, pp. 19–20.

between the ages of sixteen and twenty and for men between the ages of thirty and thirty-five. If a couple failed to produce children within ten years, separation was to take place and each member was to marry another person. Plato advocated colonization for an excessive population and immigration if the numbers dwindled beyond a certain limit.

Aristotle had more of a spiritual idea of marriage than Plato, and believed couples did not marry simply to produce offspring, but to share their joys and sorrows together because they liked each other. He would have very definite regulations of marriage, however, requiring husbands to be twenty years the senior of their wives. Women were not to be permitted to become mothers before the age of seventeen and men were not to become fathers before the age of thirty-seven. Aristotle believed property to be limited and population would likewise have to be limited. Property was to be so divided that each family would be secure. Crippled children were to be exposed, and pregnant women who had the legal number of children were to be relieved by abortion.

The early Greek writers seem to have considered dying childless one of the greatest misfortunes, but later writers show a definite turn toward celibacy. Some writers, however, continued to advocate the toleration of the evils of women and marriage because of the necessity for producing citizens. The Cynics finally repudiated domestic ties and advocated the giving of time to contemplation.

Population theories of the Romans.—Like the Greeks the Romans considered marriage a business of the state and regulated it accordingly. The Greek idea of state included a limited number of people and perfection reached through intellectual and artistic development, but the Roman ideal was universal domain. The Roman ideal involved the state in frequent wars and caused a continued demand for soldiers. This being the case, marriage was always regulated with a view of increasing the population and never limiting it. The

Romans, like the Greeks, punished bachelors and rewarded fathers of large families of boys. Marriages among both Greeks and Romans seem not to have been very fruitful, however, as shown by the fact that fathers of three or four sons were publicly rewarded. The population of Rome after 164 B.C. seems to have been either stationary or on the decline, and called forth the following statement from the censor, Quintus Metellus: "If, Romans, we had the power of living without wives, we should all be free from the trouble, but nature has so disposed it that we can neither live very commodiously with them, nor without them exist at all, and we must then provide rather for perpetual security than for transient pleasure."

Luxury, prostitution, and vice seem to have become more common as time went on, and marriage, virtue, and marital fidelity came to be very lightly regarded among the upper social groups of Rome. Julius Caesar tried to remedy conditions by prohibiting unmarried and childless women of twenty-four from wearing jewels and using litters, and by rewarding fathers of large families. He evidently did not succeed as evidenced by the added speech of Augustus to that of Metellus: "While sickness and war snatch away so many citizens, what must become of this state if marriages are no longer contracted? . . . We must not expect to see, as in our ancient fables, human beings spring forth out of the earth to perform the work of the state. Your celibacy is not owing to the desire to live alone. . . . You seek only to enjoy irregularities undisturbed. . . . My only object is the perpetuity of the state. I have increased the penalties of those who disobey; and as to rewards, they are such that I believe virtue has never received greater. For less will a thousand men give life itself; and yet will not these persuade you to take a wife and provide for children?" [5]

[5] Quoted by Stangeland, C. E., "Pre-Malthusian Doctrines of Population," Columbia University Press, 1904, p. 31.

Conditions seem to have grown worse and more stringent laws were passed. Concubinage was permitted between persons of senatorial rank and those of servile origin, but marriage between these classes was discouraged. Those who remained celibates had severe disabilities placed upon them, while those who were married and had large families had many special privileges, such as preference in rank at the monthly changes of the fasces, exemption from certain public burdens, the right to choose lots, freedom in inheritance, and badges and a distinctive dress for matrons. Bachelors and celibates received many disabilities, and widows were allowed one year and divorced women one-half year to get married. It is admitted that these laws were a failure, and by the time of Constantine, Christianity had become so strong that celibacy became honored as a meritorious sacrifice.

Population theories of the religions.—Jehovah's command to the Hebrews, "Increase and multiply" is an injunction common to every preliterate religion. Marriage was a very significant religious institution among preliterate peoples because of the frequent wars, the necessity of having sons to perform the sacred rites, and the measuring of social position by the number of descendants. Many religions seem to have had a phallic origin and worshipped divinities which demanded reverence for the fructifying powers, and the sacrifice of female chastity. Patten tells us that "in fighting clans it was necessary to offer every inducement for childbearing. Festivals, feasts, and social gatherings were designed to provoke the passions."[6] Under such stimuli the women sought to escape barrenness rather than to guard their chastity. They worshipped gods who prevented barrenness and these gods demanded of them licentious acts for their favor. "The sacrifice of chastity," continues Patten, "was an early form of worship, and sacred prostitution is an element in primitive religions. . . . When Christianity was introduced,

[6] "The Development of English Thought," Macmillan, 1899, p. 132.

the old festivals with which so much licentiousness was associated were not abolished, but were continued under other names. This was the conscious policy of the Church, and was commanded by Pope Gregory."[7]

Only a cursory acquaintance with the religious literature of the early religions of India, Greece, Rome, Egypt, the Hebrews, and the writings of Zoroaster, Confucius, Mencius, and Mohammed will tend to make one agree with Patten. All of these stress the duty of marriage and begetting sons and many worshipped gods of fertility and licentiousness. The followers of Moses, Manu, and Confucius insured their salvation and obtained true immortality by begetting sons. Not to have children was a life branded with failure among the Jews, Brahmans, Shintoists, Confucionists, and Buddhists. Each Jewess "secretly hoped that she might become the mother of the promised Messiah." Mencius taught "there are three things which are unfilial; and to have no posterity is the greatest of them." Shintoism—the national religion of Japan—emphasizes the necessity of having male children to perform the sacred rites of the dead. According to Manu, "A son of a Brahman if he performs virtuous acts redeems from sin his ten ancestors." "By a son a man obtains victory over all people; by a son's son he enjoys immortality; and afterwards by the son of that grandson he reaches the solar abode." Mohammed advocated early marriage, and according to him, "When a man marries, verily he perfects half his religion." With Buddha a peculiar inconsistency developed; demanding celibacy of the sacerdotal class and the marriage and rearing of offspring of the laity. This same doctrine is taught by the Catholic Church, the eugenic effects of which are discussed in another connection. Such religious teachings as enumerated above, we may assume, greatly increased the incentive to bear sons. P. K. Wattal, writing of conditions among the Hindus, tells us that everybody marries, fit or

[7] "The Development of English Thought," Macmillan, 1899, p. 133.

unfit, and becomes a parent at the earliest possible age permitted by nature. "A Hindu male must marry and beget children—sons, if you please—to perform his funeral rites lest his spirit wander uneasily in the waste places of the earth. The very name of son, 'Putra,' means one who saves his father's soul from the hell called 'Puta.' A Hindu maiden, unmarried at puberty, is a source of social obloquy to her family and of damnation to her ancestors." [8]

Population theories of the Mercantilists.—This was a system of political economy which, although beginning much earlier, was dominant in most European nations from about the middle of the sixteenth until the middle of the eighteenth century. The sixteenth century had been one of general awakening. New routes to India had been discovered and the Orient opened; America had been discovered and now something of her possibilities was being realized. Printing and powder had been invented and were now coming more and more into general use. A new interest was now being taken in science, philosophy, and commerce. The different nations of Europe were trying to expand and were madly trying to become wealthy and powerful; and as a result they were constantly at war and ever in need of soldiers. These conditions offered a fertile soil for the growth of the Mercantilist doctrine.

The Mercantilists thought that a nation's wealth consisted in the amount of precious metals it possessed. There was just so much of these metals in the world and if a nation did not have mines of its own it must trade with other nations to receive a "favorable balance of trade." This favorable balance of trade was to be paid in these precious metals. Other nations and colonies must be exploited. This was to be accomplished by selling manufactured goods to them and receiving precious metals in return. To manufacture these

[8] "Population Problems in India," Bennett, Coleman (Bombay), 1916, p. 3.

goods required labor; consequently labor was looked on as being the source of a nation's wealth, but the amount of precious metals constituted the nation's wealth. The nation that had the largest population could manufacture the most goods. This reasoning caused the Mercantilists to favor a large and increasing population, and as far as possible to legislate it into existence. Some of the writers opposed an increase of the idle rich and those who were likely to become a burden to the state, but various laws were passed with the avowed purpose of encouraging and increasing population.

1. *Various disabilities were placed on bachelors and celibates.* In some countries bachelors were prohibited from engaging in certain trades without securing a license by paying a fee. Some offices could be held only by married men, and preference was given to those with large families. The property of bachelors who had no very near kin was confiscated by the state at their death. Bachelors and widowers were compelled to pay an annual tax for the privilege of remaining not married. Camillus, either by persuasion or by threats of fines, obliged the single men to marry the widows of soldiers. Augustus enacted a law compelling men before twenty-five and women before twenty to be married and have children. Those who were married but childless, could receive only a half of the property bequeathed to them, and could bequeath but one-tenth of their holdings to their widows. The prolific parents received all the honors and privileges.

2. *Marriage was directly encouraged.* A Spanish law under Philip IV exempted those who married before their twenty-fifth birthday from all taxes and public burdens until they were twenty-five years of age. Dowry funds were established for young women who wished to marry. On the birth of his son, Louis XV of France "gave orders that six hundred maidens should be married at the expense of the state's treasury, and he contributed something to the dowry of each —all this with the naïve purpose of increasing the number of

people."[9] Edward VIII of England compelled lords to arrange for the marriage of their female wards by their sixteenth year or lose them. A law in Prussia required people to marry before the twenty-fifth year, and furnished aid for newly-wed couples. Empress Theresa of Austria broke tradition by allowing her soldiers to marry and increasing their pay for every legitimate child born.

3. *Fertility was encouraged.* A French law exempted men, except priests, from taxation throughout life if they had ten living legitimate children. This reward was to be withdrawn, however, if any of the children became monks, priests, or nuns. Fathers who had ten or more children were to receive annual pensions. A Spanish law granted exemption of taxation to fathers of six legitimate sons.

4. *Punishments for illegitimate children were either removed or made less severe.* The rulers of Denmark, Prussia, and other European countries sought by legislation to remove the disgrace from fallen women and illegitimate children, and established foundling homes, lying-in hospitals and apothecary shops to aid these groups. Frederick the Great perhaps portrayed the belief of the rulers when he wrote to Voltaire that he "regards men simply as a herd of deer in the park of a great noble, which has no other function than to people and fill the enclosure." He said, "*Cet axiome est certain que le nombre des peuples fait la richesse des états.*"

"The key to the situation," writes Patten, "lies in the once universal notion that the popular sports and amusements, by exciting the sexual passions, promoted the growth of population."[10] The Puritans denounced the loss of virtue in the May games, but the loss of virtue was to the ruling class an argument in their favor. "The noble," continues Patten, "who debauched the wives and daughters of his tenantry did

[9] Stangeland, C. E., "Pre-Malthusian Theories of Population," Columbia University Press, 1904, p. 126.

[10] "The Development of English Thought," Macmillan, 1899, p. 137.

not think that he did wrong; on the contrary, he told himself that he was doing the nation a service. . . . Malthus . . . had to convince not only the ruling class but the clergy; for every one believed that the illegitimate children, even of a pauper, were a national blessing, helping to make the nation greater and more prosperous.'' [11]

5. *Immigration was encouraged and emigration discouraged.* Spain, Prussia, Russia, Austria, and other European countries encouraged immigration by exempting the immigrants from taxation and other fees, finding them desirable places to settle, granting religious toleration, lending immigrants money, and otherwise granting them special rights and privileges.

Emigration, on the other hand, was discouraged in the various countries by laws prohibiting subjects to leave the country and by subjecting to heavy penalties any one aiding emigrants to leave. In 1637 Charles I even issued ''a proclamation against the disorderly transporting His Majesty's subjects to the plantation within the ports of America.''

Population theories of the Cameralists.—This doctrine of political economy was current in Europe, especially Germany, from about 1560 until the end of the eighteenth century. It co-existed with the Mercantilist doctrine and each was influenced by the other. The Cameralist doctrine was developed chiefly by writers in Germany and Austria, as the names of Pufendorf, Becher, and Suessmilch suggest. The doctrine spread to England and France and the writers in these countries made some contributions. Part of the advocates of this doctrine were university professors and produced very scholarly treatises. The fundamental question with all public men at this time was how to secure a greater income for the public treasury. The Cameralists believed that people constituted a nation's wealth and it was hardly possible to have too many. ''He is the richest prince,'' wrote Zincke, ''who has unlimited

[11] ''The Development of English Thought,'' Macmillan, 1899, pp. 137–8.

sovereignty over the most subjects." He believed that "All legitimate means must be used to maintain a constant increase of the population." Justi declared "a land can never have too many inhabitants." To bring about and maintain this increasing population fertility was to be increased by penalizing bachelors and childless married men, and offering special advantages such as tax exemptions, to heads of families. Most of Germany and parts of the other European countries at this time were under-populated and most of the writers seem to have had no fear of over-population. The more inhabitants a country had the more agricultural and commercial products it could produce, the more soldiers it would have, and the more people to pay taxes.

While they believed in an increasing population, most of the writers believed in monogamous marriages and the producing of children in wedlock only. Pufendorf states that the "ardent propensity" of the sexes for each other was not implanted by the Creator for vain pleasure, "but that thereby married persons might take greater delight in each other's company, and that both might with the more cheerfulness apply themselves to the necessary business of propagation."

Not all of the Cameralist writers believed population could go on forever increasing. Seckendorf thought that "under ordinary circumstances each region can properly maintain only so many people from its own sources as can get their means of support from its yield." He believed there were both natural and institutional limits to population, but that these differed in different countries, and each country should have all it was capable of supporting.

Population theories of the Physiocrats.—The Physiocratic school of political economy is said to date from an interview between Mirabeau and Quesnay in 1757. This school was very influential in France during the latter part of the eighteenth century, and claimed some of the leading thinkers. This school of writers agreed with the Mercantilists and

Cameralists that an increase of population was, in general, a good thing. It was more interested, however, in how the population was to be fed, and saw that populousness in itself was not always the greatest good to a nation. In general, the Physiocrats disagreed with the Mercantilists in denying any value to exchange. No wealth was created in exchange; for it was unproductive and was simply a transfer of equal values. They disagreed with the Cameralists in denying that people constituted the wealth of a nation. The Physiocrats stressed agriculture and held that the wealth of a country depends chiefly on the productivity of its soil. An increasing population was beneficial if there was plenty of available fertile soil, but since only so many could be supported, an excessive population was detrimental to a country. According to Quesnay, Mirabeau and others, population depended on subsistence. A country was wealthy when agriculture was prospering and the people well-to-do. Quesnay divided people into three classes: sterile, proprietary, and productive. The productive class is the group which cultivates the soil. Many of the proprietary class were more interested in personal gains than the welfare of a country. A country may have many rich merchants and yet be poor.

Mirabeau believed that since we depend on agriculture for food and other necessities of life, it should be encouraged in every way. Population depends on the food supply: *"La mesure de la subsistence est celle de la population,"* he said. Of the three great needs of man—subsistence, conservation, and perpetuation, the first is the most important because on it depends the strength of a nation and the limit of population. A nation's strength is not the number of soldiers, but the amount of subsistence obtainable. Any diminution in people is due to the neglect of agriculture and the peasant class rather than to wars, emigration, the number of soldiers, or the unmarried state of monks and nuns.

The Physiocrats stressed agriculture and good government.

They saw no value in an excessive population, and many of them saw little value in what they called the sterile or non-productive group of population. Stangeland says that "practically every French writer of this period recognized the dependence of population on the food supply and its tendency to press upon or exceed the means of subsistence. It was generally believed that most of the evil effects of this inevitable tendency could be avoided by better administrative regulations, or that they could at any rate be removed into the indefinite future." [12]

[12] "Pre-Malthusian Doctrines of Population," Columbia University Press, 1904, pp. 264–65.

CHAPTER XII

MALTHUS

THOMAS ROBERT MALTHUS was born near Dorking, England, in 1766. Since his father was a country gentleman, a man of university training, and a friend of the eminent philosophers of this period, Malthus' boyhood was spent in an intellectual environment. The fact that he was the youngest son and intended for the Church gave him further advantages. Excellent private teachers prepared him for college. In 1785, at the age of nineteen, he entered Jesus College, Cambridge, and graduated from there in 1788 with the A.B. degree and rank of ninth wrangler. Three years later he received the M.A. degree.

It seems that shortly after his graduation, Malthus took orders and a curacy at Albury. How well he succeeded in the ministry we are not told, but he is pictured as a most amiable, candid and cultured man. He is said to have been without blemish in his parish and domestic relationships, and to have been distinguished for the beauty of his character.

Malthus' first literary production appears to have been "The Crisis," written in 1797, but he never published it, though urged to do so by his father. In 1798 he published anonymously his famous "Essay on the Principle of Population as it Affects the Future Improvement of Society." He then took a three-year tour through the northwestern European countries, studying conditions and checking some of his earlier conclusions. This resulted in the publication of a greatly enlarged edition of his treatise under his own name in 1803. The essay passed six editions within the author's

lifetime, each edition suffering some changes. It should be remembered that this essay was only one, yet by far the most famous, of Malthus' many treatises.

The essay seems to be the result of a debate between Malthus and his father. Such subjects as Jacobinism, which the father defended and the son attacked, and how to improve society were commonly discussed. In 1797 William Godwin published the "Enquiry." This the son attacked and the father defended. The reformers in both England and France thought they were approaching the golden age when the terrible conditions would be changed and all would be well. The father agreed with the current opinion of the day but the son saw insurmountable difficulties which could never be correlated with the theories advocated. He wrote out his arguments, which, however, pleased the father so well that he advised the publication of the "Essay."

From the very first Malthus' Essay was not ignored. The first surprise soon turned to criticism, and criticism "rained" for years. He was characterized as the "best abused man of his age." Even Bonaparte was not a greater enemy of the people. He was accused of defending child-murder, slavery, and smallpox, and of denouncing parish allowances, soup-kitchens, and early marriage. Here was a man "who 'had the impudence to marry after preaching against the evils of a family;' who thought the world so badly governed that the best actions do the most harm; who, in short, took all romance out of life and preached a dull sermon on the threadbare text—'Vanity of vanities, all is vanity'." [1]

Without murmuring or a sourness of temper, Malthus bore the abuses and misrepresentations. Most of his critics, like the anti-Darwins of a later day, had never studied the population conditions and many of them had never read a line of his Essay. In 1804 Malthus was happily married and the

[1] Bonar, James, "Malthus and His Work," Macmillan (London), 1885, p. 1.

next year became Professor of History and Political Economy in East India College at Haileyburg, which position he retained until his death in 1834.

The background for Malthus' theory.—Malthus' theory did not drop out of the clear-blue sky, but was a culmination of the many theories which the general social and economic conditions produced.

It is difficult for us to imagine the horrible conditions of the poor at the time of Malthus. There had been a series of mechanical inventions which had changed the whole economic process from hand-made to machine-made goods. Exhausting wars had reduced the credit of England, thus making her situation more difficult. A series of bad crops had rendered the food situation precarious. The extension of the enclosure laws had forced many rural people to seek employment in towns. Poverty was the outcome. To combat it a vicious system of poor relief was inaugurated, in which the state sought to offer relief to all families in need. This encouraged marriage and an increase of children among the poor, and at the same time a decrease in wages. As a result the "rich became richer and the poor became poorer." Out of this general economic and social condition came universal unrest and the development of socialistic ideas which Malthus sought to refute.

The development of the factory system caused a complete breakdown of the old economic processes and changed the whole social and economic relationship. A new relationship developed between employer and employee, which, because of the lack of labor unions or customary understanding, resulted in many gross injustices. Power machinery brought an immense increase in production. It also brought with it the wage system, but the immediate effects of this were detrimental rather than beneficial to the redundant unorganized labor force. The means of communication were limited, consequently labor had only a local market, and wages were very

low. A maximum day and a minimum wage resulted from the competition of laborers. The employment of women and children increased the labor supply and soon caused wages to fall below the point of physical subsistence. "Workingmen, unemployed and on the verge of starvation," writes Reuter, "filled the roads and towns of England. Children, in the proportion of from ten to sixty to one adult, manned the factories. Under this ruthless stimulus the birth rate increased; the labor of children was in demand and it was only by the labor of their children that adults could live." [2]

That working conditions were extremely bad is shown by the fact that not less than 7,860 cellars, housing 29,000 people were found in Liverpool alone. Children did most of the work, working not only in the textile factories but in brickmaking, nailmaking, potteries, mines, and other industries. The workday was from six in the morning till seven at night but during rush seasons children worked from five in the morning till ten or eleven at night. "In some huge factories," Robert Owen tells us, "from one-fourth to one-fifth of the children were cripples or otherwise deformed, or permanently injured by excessive toil, sometimes by brutal abuse."

One of the worst phases of the factory system was the growing up of the disguised form of slavery known as apprenticeship. Under this system children were collected, guarded, beaten, housed, and locked up as if they had been so many wild beasts. Mill operators arranged with overseers of the poor to send them the poor children from their parishes. These children were collected and taken where they were likely to be wanted. Often they were kept in dark cellars where "the merchant dealing in them brought his customers, by the light of lanterns being able to examine the children." When "their limbs and stature had undergone the necessary scrutiny, the bargain was struck, and the poor innocents were conveyed to the mills." When the factories were reached the "custom was

[2] "Population Problems," Lippincott, 1923, p. 56.

for the master to clothe his apprentices and to feed and lodge them in an apprentice house near the factory. Overseers were appointed to see to the work, whose interest it was to work the children to the utmost, because their pay was in proportion to the quantity of work they could extract. Cruelty was of course the consequence; and there is abundance of evidence on record, and preserved in the recollections of some who still live, to show that in many of the manufacturing districts, . . . cruelties the most heart-rending were practiced upon the unoffending and friendless creatures who were thus consigned to the charge of master manufacturers. They were harassed to the brink of death by excess of labour; they were flogged, fettered, and tortured in the most exquisite refinements of cruelty; they were in many cases starved to the bone while flogged to their work, even in some instances they were driven to commit suicide to evade the cruelties of a world in which, though born to it so recently, their happiest moments had been passed in the garb and coercion of a workhouse."[3]

In factories where "excellent regulations" prevailed children were sent there when only six years old, where they labored from six in the morning till seven in the evening. These children naturally hated their slavery and many absconded and some committed suicide. When their apprenticeship ended at thirteen or fifteen years of age, they wandered off to the cities, ignorant, without guardians, stunted and dwarfed in stature, "and altogether admirably trained for swelling the mass of vice and misery in the towns."

In places where "excellent regulations" were not in force, Gibbins tells us "the condition of these pauper apprentices was too horrible to record in detail. Stories are told of how boys and girls fought for food from the wash-tubs disdained even by the pigs; how the children were crowded for sleeping purposes in houses or huts where decency was quite impos-

[3] Quoted by Gibbins, H.de B., "Economic and Industrial Progress of the Century," Bradley-Garretson, 1903, pp. 316–17.

sible; how they were beaten and tortured relentlessly by the over-lookers when their strength began to fail them and they felt the inevitable results of overwork; how they were even compelled to wear chains to prevent them from running away from their cruel toil . . . it would seem almost incredible to us at the close of the nineteenth century that such cruelties were allowed to go on if we did not have the facts set down in solid evidence in the Blue Books of Royal Commissioners appointed to investigate the case."[4]

Malthus' theory of population.—A few years before the appearance of Malthus' essay, two writers—Godwin, in his "Political Justice," published in 1793, and Condorcet, in his "Outlines of an Historical View of the Progress of the Human Mind," published in 1795—approached from the philosophic point of view the questions in which Malthus was fundamentally interested. Godwin attacked the system of private property because he considered it to be the source of injustice and inequality. Because of this system labor was exploited by the capitalist group and the laborers were held in poverty. If reason could be freed from the idea of gain, an improved economic state would result, profits would be curtailed, production increased, and labor adequately compensated. He realized that this might lead to an excessive population, but thought: "It would be truly absurd for us to shrink from a scheme of essential benefit to mankind, lest they should be too happy, and by necessary consequence at some distant period too populous."[5]

He accepted Franklin's idea that "mind will one day become omnipotent over matter." He thought it useless to be frightened over the increase of population because three-fourths of the inhabitable globe was uncultivated and that under cultivation it could be vastly improved. "Myriads of

[4] "Economic and Industrial Progress of the Century," Bradley-Garretson, 1903, p. 318.

[5] "Political Justice," (London), 1890, p. 115.

centuries of still increasing population may probably pass away, and the earth still be found sufficient for the subsistence of its inhabitants." [6]

Condorcet faced the question, "whether these principles of improvements and increase may not, by their continual operation, ultimately lead to degeneracy and destruction? Whether the number of inhabitants in the universe at length exceeding the means of existence, there will not result a continual decay of happiness and population, and a progress towards barbarism, or at least a sort of oscillation between good and evil." [7]

In his opinion, such a period will be remote and before it arrives "the progress of reason will have walked hand in hand with that of the sciences; . . . that men will then know, that the duties they may be under relative to propagation will consist not in the question of giving *existence* to a greater number of beings, but *happiness*; . . . and not the puerile idea of encumbering the earth with useless and wretched mortals." [8]

Malthus undertook to refute these optimistic and philosophic assumptions by an inductive analysis. He, however, "does not seem to have at first fully realized the wider social implications of his doctrine. His thinking was always colored by his reaction against the perfectionist theories of his father and William Godwin, disciples of Rousseau; theories looking rather hazily toward the regeneration of man through the abolition of vicious social institutions." [9] The materialistic and narrowly economic trend of this controversial pamphlet was doubtless due to Malthus' revulsion from the utopian ideas radiating from Rousseau. His range of knowledge appears to have been quite limited. "Outside of the question of food-supply he originally hardly ventured at all, and even

[6] "Political Justice" (London), 1890, p. 115.
[7] "Outlines of an Historical View of the Progress of the Human Mind" (London), 1795, p. 345.
[8] *Ibid.*, pp. 346–47.
[9] Weatherly, U. G., "Social Progress," Lippincott, 1926, p. 3.

here he dealt with little but the more or less static phases of the extractive industries. With science and invention, with the psychic forces that control human behavior, he showed little concern." [10]

Malthus' thesis was that there is a constant tendency for population to surpass the means of subsistence. He laid down two principles: "First, That food is necessary to the existence of man. Secondly, That the passion between the sexes is necessary, and will remain nearly in its present state." [11] These are two fundamental impulses necessary to the continuation of the species. The gratification of them brings on a struggle. Population being "limited by the means of subsistence" invariably increases where the means of subsistence increase, unless prevented by some very powerful and obvious checks. Population tends to increase by a geometrical ratio, while the food-supply increases by arithmetical rates.

Geometrical ratio—1 2 4 8 16 32 64 128 256
Arithmetical ratio—1 2 3 4 5 6 7 8 9

Thus the population doubles every twenty-five years, while the food supply merely increases by an equal amount each period. According to this ratio, in the short period of 225 years the population surpasses the means of subsistence twenty-seven times. Everywhere these tendencies lead to over-population, which in turn causes poverty, misery, starvation, and death.

According to Malthus two principal checks keep population within the bonds of subsistence. First, *preventive,* which prevents births, and second, *positive,* or those forces which kill after birth. The preventive checks mean a low birth rate while the positive mean a high death rate. The positive checks depend either upon nature and include such things as unhealthful climate, diseases, and epidemics, or upon man, and

[10] Weatherly, U. G., "Social Progress," Lippincott, 1926, p. 4.
[11] "Essay on Population," Macmillan, 1926, p. 11.

include such things as unwholesome occupations, exposure, great towns, bad nursing of children, poverty, wars, and excesses of all kinds. The preventive checks are also of two kinds: one which leads to prostitution and all forms of sexual vices, and the other "moral restraint," that is, the delay of marriage without sexual gratification. In his first edition of the essay, Malthus mentions vice, misery, and the fear of them as checks. In the second and later editions a third check is added, namely, "moral restraint," prudence, thus making his position more tenable. Malthus stressed moral restraint because he believed it caused less misery. He did not mention what is now called Neo-Malthusianism, but includes under vice "improper acts to conceal the consequences of irregular connections." Again, he says: "Indeed, I should always particularly reprobate any artificial and unnatural modes of checking population. The restraints which I have recommended are quite of a different character." He apparently changed his ideas later and condoned those practices which satisfy the sexual gratification without parenthood. At first, he classed them as vices, but now he says: "It is clearly our duty gradually to acquire a habit of gratifying our passion, only in that way which is unattended with evil."

Malthus' attitude toward charity is very peculiar for a minister in his day. The following famous passage, which was omitted from later editions, expressed his early attitude: "A man who is born into a world already possessed, if he cannot get subsistence from his parents on whom he has a just demand, and if the society does not want his labour, has no claim of *right* to the smallest portion of food, and, in fact, has no business to be where he is. At Nature's mighty feast there is no vacant cover for him." Although he omitted this passage from later editions, and was instrumental in reorganizing public assistance in England in 1832, there is no reason to believe that Malthus was ever a strong advocate of charity. Helping the poor by means of charity, especially such as the Poor Laws

of England, only aided them to have more children and increased the public burden and the misery of the poor in the next generation. This was a very acceptable doctrine to the manufacturing and wealthy groups.

Criticisms of Malthus' theory.—Perhaps quite unconsciously, Malthus brought on himself a bombardment of criticism which echoed and re-echoed for many years, and even now lingers in the distance. Doubtless he did not suspect he was writing anything that would cause such a pother, yet he laid himself liable to certain criticisms.

1. *Reproduction.* Malthus apparently made food and sex equal absolute postulates. Food is a necessity for continued existence but sex is not, yet it is necessary for the continuation of the species. He seems, however, to have recognized this as shown by his advocation of late marriages. He apparently failed to recognize that there is a distinction between sexual and reproductive desires, and that these desires differ between man and animals. Perhaps there is no great difference between man and animals in the desire for food and the desire for copulation, but there is a vast difference between the copulative desire and the reproduction desire in man. The desire for coition may be regarded as constant, but the reproduction desire is extremely variable. The reproductive desire is largely under control of mind which causes it to be variable. Malthus seems to have assumed that all population is the result of sex desire, that this desire is the same with man and animals, and that it does not vary. The objection has been raised that he considered that man propagated as a whole, while as a matter of fact mankind is divided into groups which have quite different rates of reproduction. Malthus seems to have recognized this, however, as is shown by the fact that he noticed smaller families among the wealthy.

2. *The ratio between population and food.* Malthus first stated this relationship as being in geometrical and arithmetical ratios. Undoubtedly, this is too definite a relationship. That

he apparently saw this is shown by the fact that he avoided it in later editions of his essay. In this connection he used the word "tendency" with a fallacious elasticity. Tendency is not applicable to the growth of population in the same sense as it is to food.

Doubtless, both the ratio for population and the ratio for the means of subsistence are open to criticism. So many things enter in that no one can tell how fast population will increase or how fast the food supply can be increased. Animals, which have a far more rapid rate of increase than man, furnish a large part of man's food. "It is immaterial," however, according to Gide, "whether we lengthen the interval between the two terms from twenty-five to thirty-three years, or reduce the ratio from 2 to 1½, or even to something between 1¼ and 1¹⁄₁₀." [12] The movement, of course, will be slower but Gide thinks that "it is enough that its geometrical character should be admitted, for however slow it moves at first it will grow by leaps and bounds until it surpasses all limits. These corrections fail to touch the real force of Malthus' reasoning concerning the law of reproduction." [13]

3. *Checks.* Malthus thought population lived up to the means of subsistence, and increased when the means of subsistence increased. As a matter of fact none of the nations increase up to the limit of subsistence, and such nations as France, England, and Germany are far from it. Yet there has been a definite tendency for the population to increase when the means of subsistence increased. The fact is that the poor people, those living nearest to the limit of their means of subsistence, increase more rapidly. The fear of starvation does not keep down population, but rather a standardization of living and a definite desire to maintain or increase that standard. The different groups of population have always had

[12] Gide and Rist, "History of Economic Doctrines," Heath, 1915, p. 124.
[13] *Ibid.*, p. 124.

some means of control, and since Malthus' time the use of contraceptives has come into such general use that it is difficult for France to keep her population up to the standard. The other progressive nations are also feeling the influence of this practice.

Although these and other criticisms can be brought against Malthus' theory, his fundamental postulates seem to remain true in principle, if not in letter, and are apparently quite valid.

"Despite the bitter antagonism which Malthus' theory provoked at the time," writes Lichtenberger, "and even in view of the contempt with which it has been regarded often by later writers, we nevertheless affirm that it constitutes one of the most brilliant inductive generalizations of the human mind." Lichtenberger thinks that Malthus drew unwarranted conclusions from his principle, but that this "does not destroy its validity. The fact that men navigate the air in heavier-than-air machines does not annihilate the law of gravity. Voluntary limitation of the birth rate on the one hand, and machine production on the other, have served merely to offset the tendency he described. They have not eliminated it." [14]

Malthus' contribution.—It is a question as to how great a contribution Malthus made to economic and social thinking. Some people consider his theory new, his analysis unique and a great contribution. Others see nothing new in his theory and consider that he made no contribution. It is true that most of his ideas were contained in the writings of thinkers before his day. Machiavelli wrote about three hundred years before Malthus and apparently realized that there is danger of population increasing in a limited territory beyond the means of subsistence, and that this excessive population would be reduced by want and diseases.[15]

[14] "Development of Social Theory," Century, 1923, p. 274.
[15] Compare "History of Florence," Bohn, 1847, Book II, Chapter I.

Botero, writing in 1592, contended that a population after increasing for some time could not continue to increase at the same rate and that it might stand still or even decrease. He believed that population was limited by the means of subsistence and this struggle for food was the main cause of wars, bloodshed, and strife. The limitation of the means of subsistence he considered as the primary check on population and such things as disease, epidemics, poor soil, and bad climate as secondary checks.[16]

Sir Walter Raleigh believed that an excessive population brought on war, and that war was sometimes beneficial because it relieved congestion. He thought a country might become so over-populated that it would become sick. Hunger, pestilence, wars, and artificial sterility kept the country from overflowing with population. Wars and plagues tended to keep down the population, but in times of peace the fear of starvation caused people to delay marriage and practice artificial control.[17]

Sir Matthew Hale, in his "Primitive Origination of Mankind," published in 1677, seems to have held the major doctrines of Malthus. "He," writes Stangeland, "endeavors by various calculations to prove that every human population is able in a comparatively short period of time to increase very remarkably; he says, in fact, that this increase tends to occur at a geometrical rate, thus directly anticipating by more than one hundred years one of Malthus's propositions. According to his reasoning, a population may double itself in thirty-five years; but as at this rate of increase the number of people would long since have passed beyond the limits set by the means of subsistence, he explained the really comparatively small population as due to the working of certain checks, such

[16] Compare Stangeland, C. E., "Pre-Malthusian Doctrines of Population," Columbia University Press, 1904, pp. 105–06.

[17] Compare Raleigh, "History of the World" (London), 1676, especially Book I, Chapter VIII.

as famines, wars, floods, pestilence and earthquakes; and he cited historical instances in support of his assertion.'' [18]

There were many other writers that had ideas similar to those Malthus expounded. For example, Montesquieu had practically the same views of charity that Malthus advocated, and De Saxe believed population might increase in a geometrical ratio in generations of about thirty years. The nearer we approach the time of Malthus the more clearly his ideas are stated by his precursors; consequently, it appears that it was Malthus's mathematical ratios and analogies rather than any distinctive new doctrines that called attention to his essay, thereby causing him to exert a tremendous influence on future thinking, and rendering his name immortal. ''It would be difficult perhaps,'' writes Lichtenberger, ''to say in what field of science the work of Malthus has exerted the greatest influence. He created two great concepts, neither of which he named: 'The law of diminishing returns' in Economics, and 'The struggle for existence,' in Biology, and set the standard for all demographic studies in sociology.'' [19]

[18] Stangeland, *op. cit.*, p. 148.
[19] ''Development of Social Theory,'' Century, 1923, p. 274.

CHAPTER XIII

POST-MALTHUSIAN THEORIES OF POPULATION

In the previous chapters we saw there was a gradually growing interest in the problem of increasing numbers of people which brought forth Malthus' theory. Malthus' essay caused a cyclone in theological circles which echoed in other fields and gave rise to an unprecedented amount of discussion. Most of these essays start with Malthus' premises and discuss the major problems raised by them, such as the probable increase of population, the possible checks, and the dangers from over-population and under-population. Most of these discussions have no value. Some writers rejected and sought to refute his arguments. Others tried to interpret, modify and supplement and others sought to establish theories of their own.

"Much of this discussion," writes Reuter, "has been little more than futile debate on the basis of the original somewhat faulty premises. Some critics have undertaken to refute the Malthusian thesis and there rested their case. Others, accepting the main contentions, have undertaken to supplement, modify, or interpret it. Still other writers reject the hypothesis and boldly assert the impossibility of stating any general law or principle capable of comprehending so complex a phenomenon as the behavior of population growth. But there have been numerous students, unconvinced by the Malthusian theory, who have undertaken to formulate different and what they conceived to be more valid generalizations." [20]

Among all this controversial material from the time of Malthus till the present day there are a few theories with which the student of population problems should be familiar.

1 "Population Problems," Lippincott, 1923, p. 75.

Thompson.—In 1824 William Thompson published "An Inquiry into the Principles of the Distribution of Wealth most Conducive to Human Happiness." Thompson attracted very little attention during his life, but has since come in for a great deal of extravagant praise. He was one of the early founders of communistic socialism and his work embodied the chief ideas of socialistic thinking in regard to population.

Thompson appears to have fully grasped the idea that labor does not enjoy all it produces. If labor enjoyed all it produced, competition could be eliminated and the standard of living raised so all would enjoy "most perfect equal security." He believed that "when the people live in comfort, the prudential check is called into full exertion, and is abundantly adequate to prevent any injurious increase of members, or such as would lessen those comforts; but when the circumstances of the people are wretched, 'tis not the prudential check that operates; prudence has no place amidst eternal want; breeding goes on as amongst the lower animals, till cold, nakedness, hunger, disease seize on their victims and keep down the population by misery to the level of their wretched means of support." When once established "abundant comforts and the habit of enjoying would beget an unwillingness to part with them," and "superior information and extended sympathy would increase and justify this disinclination, from a view of the discomfort it would produce to the new sharers as well as to the old. True that the inconveniences of a large family would not under mutual co-operation press so heavily on the individual as under competition with the most perfect equal security: but a regard for the common welfare and common loss of comforts in which their own would be included, would soon become at least as powerful a curb, in such minds of co-operators, as the simple individual motive produces in the minds of competitors."[2]

[2] "An Inquiry into the Principles of the Distribution of Wealth most Conducive to Human Happiness," p. 546.

Rae.—John Rae, in 1834, published under an unfortunate title his book now entitled, "The Sociological Theory of Capital." Rae's observations in the Hawaiian Islands led him to see that Malthus' law did not apply to conditions there; consequently he formulated his law of *effective desire* which he thought would apply. He stated his principle as follows:

"A truly philosophical Essay on Population, fearlessly embracing the whole subject, might proceed thus. Man is an animal and more. Being an animal he must in each generation exercise his powers of propagation to the extent of somewhat more than reproducing himself, else accidents would diminish and ultimately destroy the race. He resembles the inferior animals also in this, that the act of propagation is attended with vehement pleasure. But he differs from them in this, that he knows the probable results of this act (which they do not), and in dread of these results may altogether refrain or take measures to negative them. He may employ the organs for mere pleasure or as a means of gratifying and confirming the affections. He has in short the capacity of diminishing his numbers by abstinence which his reason, either when on the right road or when a wandering may teach him; or by other modes in which the appetite is abundantly gratified. For the reason that man is more than an animal, therefore, to increase, or to merely preserve, the numbers of any society, it is necessary that there exist an *effective desire of offspring.*"[3]

A peculiar condition existed in the Hawaiian Islands. "Subsistence is easily procured here, there being an abundance of vacant, fertile land, two hours daily labor on which would give every man ample support for a large family. Cattle, goats, and horses (the latter eaten by the natives and preferred to beef), have been added to the resources of former times." Why, then, had the population not increased? Rae[4]

[3] "The Sociological Theory of Capital," Macmillan, 1905, p. 356.
[4] *Ibid.*, p. 355.

believed there must be an effective desire for offspring. The Hawaiians had vices but they were not due to overpopulation as Malthus thought. And these vices "in the form of drunkenness and licentiousness especially among young females," had increased while population was not increasing. They had "other forms of vice, and things analogous to vice" such as "wars, epidemics, human sacrifices, infanticide, inconstant marriage, and intercourse between males (which last was formerly an established institution), have all since the coming of the missionaries been greatly lessened or done away with altogether," yet there was no pressure of population and the population failed to increase because of the absence of effective desire. This desire had been "hammered into the race" in the European countries because the frequent wars had caused them to build up an attitude of sanctity of marriage and "effective desire for offspring." The experience of the Hawaiians had been different and they lacked this desire for offspring found among north Europeans.

Doubleday.—In 1841 Thomas Doubleday published his book, "The True Law of Population Shown to be Connected with the Food of the People." Sadler published "The Law of Population" in 1830. In this treatise of six books he sought to disprove the super-fecundity of human beings and to show that fecundity of a people bears a direct ratio to the fertility of the earth. Alison followed with his two-volume work, "The Principle of Population" in 1840. He observed that the poorest families had the most children and tried to establish a law to show that the "rapidity of increase is in the inverse ratio of the means which are afforded of maintaining a family in comfort and independence." Doubleday, however, accounted for the large number of children among poor families and the few children among the wealthy families as being due to the physiological effects of food. Fecundity, he thought, is invariably proportioned to the amount of nourishment.

"The GREAT GENERAL LAW," he says, "then, which,

as it seems, really regulates the increase or decrease both of vegetable and of animal life, is this, that whenever a *species* or *genus* is *endangered*, a corresponding effort is invariably made by nature for its preservation and continuance, by an increase of fecundity or fertility; and that this especially takes place whenever such danger arises from a dimunition of proper nourishment or food, so that consequently the state of depletion, or the deplethoric state, is favorable to fertility and that on the other hand, the plethoric state, or state of repletion, is unfavorable to fertility, in the ratio of the intensity of each state, and this probably throughout nature universally, in the vegetable as well as the animal world; further, that as applied to mankind this law produces the following consequences, and acts thus:—

"There is in all societies a constant increase going on amongst that portion of it which is the worst supplied with food; in short, amongst the poorest.

"Amongst those in the state of affluence, and well supplied with food and luxuries, a constant decrease goes on. Amongst those who form the mean or medium between these two opposite states; that is to say, amongst those who are tolerably well supplied with good food, and not overworked, not yet idle, population is stationary. Hence it follows that it is upon the *numerical proportion* which these three states bear to each other in any society that increase or decrease upon the whole depends." [5]

According to Doubleday a state of poverty results in a heavy birth rate; while a state of wealth reduces the birth rate. Those in a state of affluence are well supplied with foods and luxuries which cause a decrease in the birth rate. This same process, he thinks, is true of all forms of life. Plants growing in very fertile soil bear few or no flowers and seeds. In order to secure seeds it is necessary to introduce hardships. This same principle is true with human beings as is

[5] "The True Law of Population," Second Edition, 1843, pp. 5–6.

shown by the large families among the poor and the disappearance of barons and peers. In poor countries the birth rate increases in proportion to the poverty, while in wealthy and well-fed nations there is a decrease in the increase of population.

Spencer.—In April, 1852, Herbert Spencer published in the *Westminister Review* an outline of "A Theory of Population Deduced from the General Law of Animal Fertility." Later he revised it and published it as Part VI, "The Law of Multiplication" in Volume II of "Principles of Biology." Spencer begins with the principle that "the forces preservative of race are two—ability in each member of the race to preserve itself, and ability to produce other members—power to maintain individual life, and power to generate the species. These must vary inversely. When, from lowness of organization, the ability to contend with external dangers is small, there must be great fertility to compensate for the consequent mortality; otherwise the race must die out. When, on the contrary, high endowments give much capacity of self-preservation, a correspondingly-low degree of fertility is requisite. Given the dangers to be met as a constant quantity; then, as the ability of any species to meet them must be a constant quantity too, and as this is made up of the two factors—power to maintain individual life and power to multiply—these cannot do other than vary inversely: one must decrease as the other increases." [6]

Spencer illustrates his principle with the reproduction rates of mice, oxen, and men. "If the reproduction of mice proceeded as slowly as the reproduction of men, mice would be extinct before a new generation could arise. . . . Conversely, did oxen propagate as fast as infusoria, the race would die of starvation in a week." [7]

Thus, as the process of individualization (power to main-

[6] "The Principles of Biology," Appleton, 1886, Vol. II, p. 401.
[7] *Ibid.*, p. 401.

tain individual life) increases the genesis (power to reproduce the species) decreases. Reproductive power must be high among those species with little ability to maintain life or they would become extinct; while the opposite tendency shows itself among the species with a high endowment of the capacity for self-preservation. Individualization and genesis then are antagonistic because the growth of one set of powers is at the expense of the others. But this inverse variation of individualization and genesis is only approximate. Because every advantageous increment of evolution "brings an advantage somewhat in excess of its cost; we see the general law, as more strictly stated, to be that Genesis decreases not quite so fast as Individualization increases."[8] Hence, there is a struggle and the "survival of the fittest, acting alone, is ever replacing inferior species by superior species."[9] This same tendency is working in man as a species and as individuals develop, become more cultured, the birth rate decreases because the power of fecundity decreases. The amount of energy is limited and the more there is used up in self-attainment the less there is left for reproduction. College women, therefore, according to Spencer, are relatively infertile because their power of fecundity has decreased.

Spencer believed there had always been a pressure of population in groups and this was the cause of progress. "It produced the original diffusion of the race. It compelled men to abandon predatory habits and take to agriculture. It led to the cleaning of the Earth's surface. It forced men into the social state; made social organization inevitable; and has developed the social sentiments. It has stimulated to progressive improvements in production, and to increased skill and intelligence. It is daily thrusting us into closer contact and more mutually-dependent relationships. And after having caused, as it ultimately must, the due peopling of the globe, and the rais-

8 "The Principles of Biology," Appleton, 1886, Vol. II, p. 477.
9 *Ibid.*, p. 478.

ing of all its habitable parts into the highest state of culture—after having brought all processes for the satisfaction of human wants to perfection—after having, at the same time, developed the intellect into complete competency for its work, and the feelings into complete fitness for social life—after having done all this, the pressure of population, as it gradually finishes its work, must gradually bring itself to an end.'' [10]

Dumont.—In 1890 Arsène Dumont published his book, ''Depopulation et Civilization'' in which he set forth his theory of population known as the *Law of Social Capillarity.* Dumont reacted against Malthus' law because he did not believe that population tends to exceed the means of subsistence, yet he proposed a theory more fundamentally economic than Malthus' law. He believed that the birth rate is in inverse ratio to the ''social capillarity,'' that is, the tendency to rise in the social scale. He did not state any absolute economic law but believed that the birth rate somehow correlated with the economic status of the individual or group. A low birth rate, he believed, coincided with wealth, education, and absence of religious beliefs; while a high birth rate correlated with ignorance, poverty, and credulity. He did not overlook the fact that customs and tradition might influence the birth rate, as they had apparently done in England. But a great birth rate cannot continue to exist except in countries where the social capillarity is lacking or weak, as in India, where the caste system makes it impossible. In a democratic society, the capable and ambitious have an opportunity to rise and do so because the social capillarity is great. Where new economic opportunities are offered, as in a new country, the social capillarity is great and population increases rapidly. In a country like the United States the social capillarity is weak among the poorest group and large families prevail. But among the middle and wealthy classes the social capillarity is strong and small families are the rule. Under our system of compe-

[10] ''The Principles of Biology,'' Appleton, 1886, Vol. II, pp. 506–7.

tition the members of the middle class find it difficult to maintain the standard of living they desire and limit their families so that this is possible. The keener the competition becomes the more they will limit their families. The wealthy limit their families not so much from the point of economic necessity as social expediency. Their standard of living demands that they spend most of their time in certain social obligations which they are unable to do if they have large families. Dumont realized that in a democratic society this social capillarity might extend itself so that all classes might excessively limit their families. "In a democratic society," he says, "the real danger is excessive limitation of the birth rate by all classes, even the lowest. When privileged classes and social stratification have disappeared, the members of every class strive to raise themselves above their present condition by restricting the number of their offspring."[11] Nitti sums up Dumont's fundamental teachings as follows:

(1) The progress of the birth-rate is in inverse ratio to social capillarity.

(2) The progress of an individual, either in personal worth or enjoyment, is in direct proportion to social capillarity.

(3) The development of the race is, on the other hand, in inverse ratio to individual development in worth or pleasures.

(4) The more brilliant a centre of culture is, the more it attracts, and the more it exercises attraction the more brilliant it becomes; this is an effect which develops itself.

(5) The more considerable the attraction exercised is, the more suddenly are those overpowered who submit themselves to its influence. The plebeian sets before himself a higher ideal than the son of the rich man; hence enjoyment becomes less accessible to him.

(6) Thus, democracy represents culture intensively, while the system of social inequalities represents it extensively.[12]

[11] Quoted by Reuter, E. B., "Population Problems," Lippincott, 1923, p. 85.

[12] Nitti, F. S., "La Population et le Système Social," English Translation, "Population and the Social System," pp. 78–79.

Nitti.—In 1893 Fr. S. Nitti published "La Population et le Système Social" (English translation, "Population and the Social System"). Nitti seems to be inconsistent and to waver in his convictions. He opposes Malthus and tries to combine the ideas of Spencer and Dumont. The law of Malthus, he said, "explains nothing just as it comprehends nothing."

"It is well to note here," writes Nitti, "that the automatic excess of population, which occurs in the three primitive periods, the barbarous, pastoral, and the agricultural, and also, although in a slighter degree, in the fourth, has been the greatest cause of human progress, since it has compelled entire populations to either undergo a transformation or to decay, and it has forced the primitive civilisation to leave the static period and to enter upon the dynamic period. But as humanity became civilized, and as the last two phases [the industrial and commercial civilization] succeeded to the three earlier, so the production of men has always proportioned itself to the production of the means of subsistence." [13]

"The problem of population," he writes in another connection, "must be chiefly considered from the standpoint of the distribution of wealth with which it is strictly bound up. We can assert that *a country* which, in the actual form of economic constitution, is capable of sustaining a certain number of individuals, could sustain a much greater number when the economic form is changed in the direction of a wider distribution of the wealth produced." [14]

Nitti seems to see the need of adding the social consciousness to Spencer's biology to explain the falling birth rate among the higher civilized nations. In modern society the economic system does not depend upon an increase of population; but, on the contrary, the number of those who live and the number born, depend upon the economic situation. If the economic situation of a group is low, the moral feeling is low, the pleas-

[13] Nitti, F. S., *op. cit.*, p. 112.
[14] *Ibid.*, p. 102.

ures are more restricted, sex is more important, and the birth rate more abundant and disorderly. Every improvement in general conditions such as diffusion of wealth, raising of wages and improving the standard of living decreases the birth rate.

"Every diffusion of wealth," he says, "and every increase in solidarity imply, as we have seen, a development of individuality. Every development of individuality implies a decrease of fecundity.

"We may, therefore, conclude that *in every society where individuality will be strongly developed, but where progress of socialisation will not extinguish individual activity; in every society where wealth will be largely subdivided and where the social cause of inequality will be eliminated by an elevated form of co-operation, the birth-rate will tend to become equal with the means of subsistence, and the regular variations of demographic evolution, will,* not have, *as in the past, an element of fear and terror.*" [15]

Patten.—In 1895 Simon Nelson Patten published an article: "The Law of Population Restated," in *The Political Science Quarterly,* Vol. X. He saw the limitations of Malthus' law and sought to restate it with a new basis so as to make it practicable and workable.

"The opposition to be harmonized," according to Patten, "is not between population and the means of subsistence, but rather between population and productive power." The quantity of food a nation can produce depends upon its productive power, and this productive power is definitely related to the intelligence of the citizens and the efficiency of the social organization of that particular nation. Patten makes productive power the "connecting link, the equalizing force, between population and the food supply; it checks the former and increases the latter." He thinks that "the cruder appetites and passions are the strongest motives to action," among

[15] Nitti, F. S., *op. cit.,* p. 191.

preliterate peoples, but as civilization advances these are gradually subdued and other pleasures become stronger so that a new society "becomes possible, in which individuals act in a way that tends to secure a closer connection between population and productive power." [16]

Patten claims that there is need for two considerations in a new statement of the law: First, the law does not depend upon the opposition between man and external nature, but "upon the opposition between different elements in man's nature." Second, the law depends upon subjective changes in man rather than objective changes in his environment. He maintains that man's nature is gradually changing so that new powers and pleasures are developing, and that along with these there is an increasing productive power of individuals. "From this we arrive at the somewhat paradoxical conclusion that the tendency to over-populate leads, not to over-population, but to under-population." [17]

Patten would supplement Malthus' law with three classes of unconscious checks. The first is an economic check. By it the mental qualities which aid production are strengthened, and changes in consumption which increase the welfare of society are favored. The second is a sociological check. Certain conditions are created in a progressive society which cause its members to be less conscious of the passions within them. The third is a physiological check. This begins to operate as the passions themselves are reduced and gradually lose their power. "In these ways, through the growth of economic, sociological and physiological checks to population, society is gradually getting itself into a better condition, where there is a greater harmony between the different sides of human nature. The opposition between the productive power of society and its rate of increase is lessened, while

[16] "The Law of Population Restated," *Political Science Quarterly*, 1895, Vol. X, pp. 50–51.
[17] *Ibid.*, p. 53.

vice and misery cease to be a necessary consequence of social progress."[18]

Pell.—In 1921 C. E. Pell published "The Law of Births and Deaths." Being a follower of Doubleday, Pell believes that the declining birth rate is due to natural causes. The over-nutrition of the wealthier classes and under-nutrition of the poorer classes cause the differential birth rate. He believes that anything which influences the environment and produces a change, whether it be climatic conditions, food, or what not, affects the nervous energy which in turn controls the birth and death rates. This law applies to both plants and animals, and he believes it applicable to man. Wealthy people eat rich foods which in turn affect their nervous systems and reduce their fecundity so that small families and sterility result. His hypotheses are stated as follows:

(1) "That the decline in the birthrate is mainly due to a natural law which adjusts the degree of fertility to suit the deathrate of the race.

(2) "That the variation in the degree of animal fertility is responsive to the direct action of the environment will bear an inverse proportion to the intensity of the nervous change. . . .

(3) "That the principle is a law governing the union of sperm cell and ovum."[19]

Cox.—Harold Cox in 1922 published "The Problem of Population."[20] This book is more a discourse on birth control than a population theory. Yet he finds that "as the population grows the rate of growth tends to decline." This, he believes, to be a natural law and applicable to plants, animals, and population. He finds that plants grow very rapidly for the first few days of their life, and then slow down. The normal boy weighs seven pounds at birth. In the first four

[18] Patten, S. N., *op. cit.*, p. 60.
[19] Pp. 190–91.
[20] Cape (London), 1922.

months of his life he doubles in weight. If he were to continue at this same rate, he would weigh fifty-one tons by the time he was six years of age. He apparently believes this a natural law which applies to population, yet he seems to believe the decline in the birth rate is due to the use of contraceptive methods.

Pearl.—In 1924 Raymond Pearl published his "Studies in Human Biology." Part IV, which is a series of studies previously published in different journals, is devoted to "The Population Problem." Pearl's theory seems to be nothing more than mathematical calculations applied to the *sponge* theory of population. According to the sponge theory the world or any country can support only so many people and when that number is reached, there can be no further increase. A sponge can soak up just so much water and when that point is reached, there is no room for any more. Pearl experimented with the fruit fly (Drosophila), studied the growth of population in several countries, and worked out a curve for population growth. "In the early years," he says, "following the settlement of a country the population growth is slow. Presently it begins to grow faster. After it passes the point where half the available resources of subsistence have been drawn upon and utilized, the rate of growth becomes slower, until finally the maximum population which the area will support is reached." [21]

Pearl believes the United States can support only 197,000,000 people and that number will be reached by the year 2100. This number of people "will require, on the basis of our present food habits about 260,000,000,000,000 calories per annum. The United States, during the seven years 1911 to 1918, produced as an annual average in the form of human food, both primary and secondary (i.e., broadly vegetable and animal), only 137,163,606,000,000 calories per year. So that unless

[21] "The Biology of Death," *Scientific Monthly*, Vol. 13, September, 1921, p. 206.

our food habits radically change, and a man is able to do with less than 3000 to 3500 calories per day, or unless our agricultural production radically increases, it will be necessary when our modest figure for the asymptotic population is reached, to import nearly or quite one-half of the calories necessary for that population. It seems improbable that the population will go on increasing at any very rapid rate after such a condition is reached. And is it at all reasonable to suppose that at such time, with all the competition for the means of subsistence which the already densely populated countries of Europe will be putting up, there can be found any portion of the globe producing food in excess of its own needs to an extent to make it possible for us to find the calories we shall need to import?'' [22]

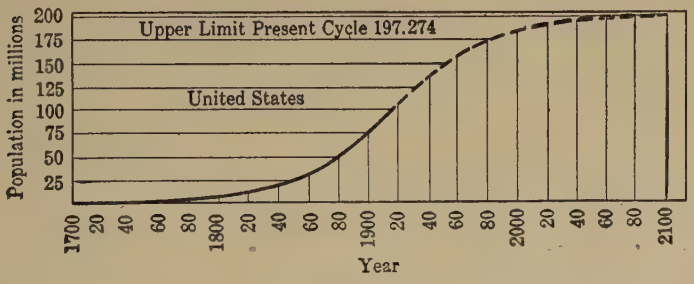


FIGURE 4

Curve of Population Growth of the United States. [*After Pearl.*]

The cycle theory.—A rather recent and ingenious theory explains the rise and fall in the birth rates as being due to cosmic force which follows cycle changes of long or short duration. The fall in the birth rate for the last fifty or more years is explained as being due to the fact that we are in a cycle of low fecundity.

Magelssen studied the changes in temperature for Paris,

[22] Pearl, R., ''Studies in Human Biology,'' Williams and Wilkins, 1924, p. 592.

Berlin, and Stockholm for 1820 to 1920 and concluded that there is a correlation between the changes in temperature and the rise and fall in the birth rate. Temperature, he thinks, influences the gland secretions which in turn influence the fecund power.[23]

[23] "The Birth Rate and Weather," *The Forum*, Vol. 66, September, 1921, pp. 191–96.

CHAPTER XIV

POPULATION OF THE EARTH

Estimates of the population of the earth.—Various estimates of the population of the earth have been made from time to time. Even now census reports from many of our most highly civilized countries are far from accurate. Consequently, estimates of the world population are largely guesses. If Mulhall was correct, the earth had about 54,000,000 people at the time of the Roman Empire. Malte Brün thought the world population was about 640,000,000 in 1804; Balbi estimated it at 739,000,000 in 1843. Stoddard[1] estimated the population of the earth to be 1,700,000,000 in 1914. Of these, he thought 550,000,000 were white; 500,000,000 were yellow; 450,000,000 were brown; 150,000,000 were black; and 50,000,000 were red or unclassified. East[2] placed the world population at 1,750,000,000 in 1916. According to East 710,000,000 were white, 510,000,000 yellow, 420,000,000 brown, and 110,000,000 black. Stoddard estimated that 1,150,000,000 of the people in the world were colored and 550,000,000 white. According to East 1,040,000,000 were colored and 710,000,000 white. Of the whites, 465,000,000 were in Europe; 185,000,000 were of European origin, and 60,000,000 of non-European origin.

Area and population of the earth.—Only about 57,255,000 of the 196,940,000 square miles of the superficial area of the earth are land. About 29,000,000 of the square miles of land are fertile, 14,000,000 are steppes and 4,861,000 are deserts.

1 "The Rising Tide of Color," Scribner, 1920, pp. 6–7.
2 "Mankind at the Crossroads," Scribner, 1923, pp. 111–12.

CONTINENTAL DISTRIBUTION OF POPULATION

Continents	*Square Miles*	*Population*	*Population per Square Mile*
Asia	17,206,000	921,000,000	53.5
Africa	11,622,619	141,000,000	12.2
North America	8,589,257	136,000,000	15.8
South America	7,570,015	64,000,000	8.4
Europe	3,872,561	476,000,000	122.9
Australasia	3,313,613	9,000,000	2.7
Polar regions	5,081,935		
Total	57,255,000	1,748,000,000	30.8

According to the above table Europe is the most densely populated continent. We have heard much of the Asiatic

AREA AND POPULATION OF SOME OF THE LARGER NATIONS [3]

Countries (including dependencies)	*Area in Square Miles*	*Population*	*Per Cent Distribution*	
			Area	*Population*
Aggregate	55,885,000	1,720,000,000	100.0	100.0
British Empire	12,780,000	445,388,000	22.9	25.9
China	4,171,000	400,000,000	7.5	23.3
Russia	8,248,000	166,107,000	14.8	9.7
United States	3,743,000	117,859,000	6.7	6.9
France	4,751,000	96,199,000	8.5	5.6
Japan	316,000	78,000,000	0.6	4.5
Germany	172,000	55,086,000	0.3	3.2
Netherlands	796,000	54,027,000	1.4	3.1
Italy	562,000	38,000,000	1.0	2.2
Brazil	3,276,000	30,492,000	5.9	1.8
Poland	141,000	30,072,000	0.3	1.7
Other countries	16,929,000	208,770,000	30.3	12.1

[3] Compare *Census Report*, Vol. 1, p. 13, 1920.

hordes but Asia is nothing like half so densely populated as Europe. South America has a very sparse population and Australasia is at the opposite extreme from Europe.

The British Empire contains over one-fourth of the population of the world. If we add China to the British Empire, two nations control almost one-half of the population of the world. If we add Russia, the United States, France, and Japan to these we get over three-fourths of the population of the world.

DENSITY OF POPULATION OF SEVERAL COUNTRIES[4]

Country	*Inhabitants per Square Mile*	*Country*	*Inhabitants per Square Mile*
England	669.2	Jugoslavia	118.5
Belgium	652.7	Spain	106.6
Netherlands	542.9	Greece	105.0
Japan	375.0	Czechoslovakia	96.7
Germany	332.0	Albania	73.9
Italy	326.5	Palestine	71.9
Switzerland	241.7	Russia in Europe	71.0
Hungary	222.9	Turkey	54.4
Austria	199.8	United States	35.5
China	197.7	Sweden	33.8
France	189.5	Mexico	19.2
Denmark	188.7	Norway	19.1
India	174.7	Persia	15.1
Poland	162.8	Brazil	9.3
Scotland	156.5	Argentine	6.8
Portugal	152.8	Canada	2.0
Rumania	150.0	Siberia	2.0
Ireland	134.0	Australia	1.4
Bulgaria	119.0	Arabia	1.0

It would seem, therefore, that England is the most densely

[4] "Density of Our Population," *The Literary Digest*, Vol. 71, October 29, 1921, p. 11.

populated country in the world. We have heard much about the densely populated countries of Japan, China, and India, but their population is nothing like so dense as certain countries of Europe. If all the population of the world were suddenly dumped into the United States, we would not then have the density of Belgium. Such old world countries as Arabia, Siberia, and Persia, and such new world countries as Canada, Argentine, Brazil, and the other South American Republics have a very low density. The map on the opposite page gives a bird's eye view of the relative densities of the countries.

Increase and distribution of Asiatic population.—China, India, and Japan are examples of the "glorious fertility of the East." Over one-half of the population of the earth dwell in Asia. China has about 400,800,000 inhabitants; India, 319,075,000, and Japan 80,704,800. About seventy-five per cent of Asia west of India and north to Russia is desert country. Other parts of Asia such as the high altitudes in India, China, and Japan, and the steppes and tundras in Central Asia are sparsely settled.

China. The population of China is variously estimated from 325,000,000 to 467,000,000. She is said to have had 30,000,000 in 1700; 360,000,000 in 1800; and 439,000,000 in 1909. East thinks these estimates too high and that China now has between 325,000,000 and 350,000,000, and that it is doubtful if China's population is increasing at present.

India. The population of India is estimated to have been 178,000,000 in 1851; 205,162,000 in 1872; and 232,000,000 in 1911. If we include the Feudatory and Tributary States, India had a population of 294,000,000 in 1921. At the beginning of the nineteenth century India had a population around 172,000,000, but 100 years later 319,000,000. East thinks that India has about reached her maximum capacity; hence her increase is now very slow.

Japan. The territory of Japan proper is much smaller than the state of California. Owing to her many mountains

FIGURE 5

Reprinted from the Annals of the American Academy of Political and Social Science, entitled "Europe in 1927," Vol. CXXXIV, November, 1927.

and much stony ground, only about fifteen per cent of her country is really suitable for agricultural purposes; yet her population is increasing at the rate of about 700,000 a year. The average amount of land is about one-fourth of an acre per inhabitant, and the average holding is about three acres. Her density is 373 per square mile, but only 300 for the Empire.

Increase and distribution of European population.— Levasseur estimated the total population of Europe, including European Russia, to have been 185,000,000 in 1810-1815. With the Balkan States added, it approximated 194,500,000. Willcox thinks it was around 127,000,000 in 1750. Rossiter thinks there is a likelihood "that (1) the population of Europe in the year 1000 must have been between eighteen and thirty millions; (2) population increase was extremely slow, but tended century by century to gather headway; and (3) an increase of possibly 33 per cent per one hundred years was reached by the seventeenth century, and of 50 per cent by the eighteenth century." [5]

Including European Russia and the Balkan States, the total population of Europe approximated 194,000,000 in 1810; 293,000,000, or an increase of 51 per cent by 1860; and 454,000,000, or an increase of 55 per cent by 1910. At the close of the Napoleonic Wars (1815) Europeans and their descendants in America, Australia, and elsewhere probably numbered 210,000,000. A century later, when Europe was again in the throes of war, this population had increased to approximately 645,000,000. During the nineteenth century the population of Europe increased from 200,000,000 to 450,000,000; Africa from 100,000,000 to 140,000,000; America from 20,000,000 to 205,000,000; and Asia from 400,000,000 to 870,000,000. It is estimated that the total population of Europe increased from 142,000,000 in 1772 to 454,000,000 in 1912.

[5] "The Adventure of Population Growth," *Journal of the Am. Stat. Assn.*, Vol. 18, March, 1923, p. 563.

The combined population of Austria, England, France, Italy, Prussia, Russia, and Spain is thought to have increased from 46,700,000 in 1480 to 285,881,000 in 1880.

INCREASE OF POPULATION OF CERTAIN EUROPEAN COUNTRIES [6]

	1816	*1914*
Russia (including Poland)	45,000,000	141,679,176
France	29,676,148	39,947,699
Austria	27,000,000	51,080,081
Germany	24,833,000	68,442,262
United Kingdom	19,500,000	46,493,959
Italy	18,380,995	35,597,784
Belgium	.....	7,747,441
Total	164,390,143	390,993,402

The United Kingdom is estimated to have increased her population from 3,500,000 in 1066 to 45,517,000 in 1920; Germany from 800,000 in 1480 to 66,810,000 in 1915; France from 12,600,000 in 1480 to 40,000,000 in 1920. Between 1872 and 1912 it is estimated that the population of Russia increased 90%, Servia 70%, Germany 60%, England 59%, Austria-Hungary 40%, Belgium 40%, and France 10%. According to Rossiter the population of Europe increased almost two and one-half times between 1814 and 1914. During the decade prior to 1914, the population of Russia increased 27,148,442, Germany 8,625,060, Austria-Hungary 4,053,154, Great Britain 3,761,439, Italy 2,196,124, Belgium 730,226, France 349,242.

In 1889 there were only seven large nations in Europe; none of the others had a population of over six millions. In the last thirty-five years there has been quite a shift in the population of Europe.

[6] Compare *North American Review*, Vol. 203, 1916, pp. 700–10.

	1889	*1925*
Russia	88,205,353	132,000,000
Germany	46,855,704	65,500,000
Austria–Hungary	40,348,215	
France	38,218,903	40,000,000
Great Britain and Ireland	37,453,574	40,560,580*
Italy	30,260,865	38,500,000
Spain	17,358,404	21,300,000

*Figure for 1925 does not include Ireland.

As an outgrowth of the World War Poland was reborn with a territory of 149,140 square miles and a population of 30,000,000; Rumania more than doubled her territory and now has a population of 17,000,000; Czechoslovakia was created with 54,877 square miles of territory and a population of 13,613,000, and Jugo-Slavia with 96,134 square miles of territory and a population of 12,017,000. Between the two wars between France and Germany, France's population increased by 3,000,000 while Germany's increased by 25,000,000. France added considerable territory as a result of the World War and brought her colonial empire up to 62,000,000 persons. This number added to her continental population gives a grand total of approximately 100,000,000. In 1861 continental France numbered about 400,000 foreigners among her population, but by 1921 this number had increased to 1,600,000; nearly one-third of whom were Italians.

The population of the United Kingdom is approximately 44,000,000. Between 1801 and 1921 her population increased from 16,300,000 to 44,000,000 despite the fact that between 1853 and 1920 about 14,000,000 Britishers emigrated.

As a result of the World War Germany lost about 27,000 square miles of territory and approximately 7,000,000 residents of this territory. The War reduced Austria's territory by 74,000 square miles and her population by 22,500,000;

and Hungary's territory by 90,000 square miles and her population by 13,000,000.

Parts of Europe, like parts of Asia, are densely populated, while other parts because of mountains and tundras, are sparsely inhabitated. In 1816 the number of people per square mile in France, Austria, Germany, the United Kingdom, and Italy varied from 104 in Austria to 166 in Italy. In 1914 Austria had 195 people per square mile, France 193, Italy 321, and the United Kingdom 382. Between 1816 and 1914 Germany's density increased from 123 to 328 inhabitants per square mile. Within this same period the population of Germany increased to nearly three times its former size despite the loss by heavy emigration.

Increase, distribution and composition of the population of the United States.—The census reports for 1920 reveal the fact that the continental United States (excluding Alaska) had a population of 105,710,620, divided as follows: 94,820,915 were whites (13,712,754 foreign-born); 10,463,131 Negroes; 244,437 Indians, 111,010 Japanese; 61,639 Chinese; 19,488 others. The percentage of distribution is as follows: White, 89.7; Negro, 9.9; Indian, 0.2; Japanese, 0.1; Chinese, 0.1.

The table on page 250 reveals (1) that the growth of the population of the United States has been phenomenal, and (2) that the percentage of Negroes in the total population has steadily decreased.

It is estimated that within 100 years the population of America increased 700 per cent and that of the United States 1,000 per cent. Our increase was about one-third per decade prior to the Civil War. Since that time there has been a steady decrease in our decadial increase. Our increase for the last decade was the lowest in our statistical history. With the French we can say, "*C'est la guerre.*" The war decreased our immigration and called many of our immigrants back to Europe. At the same time our death rate increased notice-

THE INCREASE OF POPULATION OF THE UNITED STATES FROM 1790 TO 1920

Year	*Total Population*	*White*	*Negro*	*Per Cent*	
				White	*Negro*
1790	3,929,214	3,172,006	757,208	80.7	19.3
1800	5,308,483	4,306,446	1,002,037	81.8	18.9
1810	7,239,881	5,862,073	1,377,808	81.0	19.0
1820	9,638,453	7,866,797	1,771,656	81.6	18.4
1830	12,866,020	10,537,378	2,328,642	81.9	18.1
1840	17,069,453	14,195,805	2,873,648	83.2	16.8
1850	23,191,876	19,553,068	3,638,808	84.3	15.7
1860[7]	31,443,321	26,922,537	4,441,830	85.6	14.1
1870[7]	39,818,449	34,337,292	5,392,172	86.2	13.5
1880	50,155,783	43,402,970	6,580,793	86.5	13.1
1890	62,947,714	55,101,258	7,488,676	87.5	11.9
1900	75,994,597	66,809,196	8,833,994	87.9	11.6
1910	91,972,266	81,731,957	9,827,763	88.9	10.7
1920	105,710,620	94,820,915	10,463,131	89.7	9.9

ably. Had it not been for the war our increase of population for the decade ending 1920 would have been around 20 per cent, rather than 14.9 per cent. Yet this increase of only 13,738,354 would almost populate a Mexico and exceeds the population of Czechoslovakia or Jugo-Slavia. It would almost populate present Austria and Hungary combined, and over-populate two Norway and Swedens, or four Denmarks. Within three decades the population of the United States has increased enough to make a country larger than Spain, Italy, or France; enough to populate Brazil, Argentine, Paraguay, and Uruguay combined.

How much of our increase in population is due to immigration is a matter for conjecture. Between 1820 and 1920 we admitted 33,654,803 immigrants. How many returned to

[7] Corrected.

their native countries we do not know, perhaps not over one-fourth. In 1920 we had 15,694,539 native born of foreign parentage; 6,991,665 of mixed parentage, and 13,712,754 foreign born whites. Of the latter number 1,686,102, or 12.3 per cent were from Germany; 1,610,109, or 11.7 per cent from Italy; 1,400,489 or 11.2 per cent from Russia, and 1,037,233, or 7.6 per cent from Ireland. The foreign white stock is enumerated at 36,398,958. Over 7,000,000 of these are Germans; 4,000,000 each of Poles and Irish; 3,320,000, are Jews; more than 3,000,000 English; 3,000,000 each of Austrians, Italians, and Russians; almost 3,000,000 French Canadians; and more than 1,000,000 each of Hungarians, Norwegians, and Swedes.

PERCENTAGE INCREASE OF WHITES AND NEGROES, 1860–1920

Whites

	1860–70	*1870–80*	*1880–90*	*1890–1900*	*1900–10*	*1910–20*
North....	28.3	26.7	24.9	18.9	17.9	13.7
South....	11.8	34.5	24.9	25.2	23.4	17.4
West.....	65.1	40.8	78.1	34.9	69.4	30.9
Total..	27.5	24.6	26.7	21.1	22.3	16.0

Negroes

North....	33.1	35.8	19.9	25.6	16.7	43.3
South....	7.9	34.7	13.5	17.5	10.4	1.9
West.....	42.9	85.7	128.7	11.7	67.5	55.1
Total..	21.4	22.0	13.5	18.0	11.2	6.5

The above table reveals a tendency toward a steady decadial decrease of both whites and Negroes. If the table reveals the real situation and the present tendency continues, within a few decades the Negro population will cease to increase.

INCREASE OF FOREIGN-BORN AND NEGROES, 1860–1920
(Increase over the Preceding Decade)

	Total	*Per Cent*	*Foreign-born Whites*	*Per Cent*	*Negro*	*Per Cent*
1860 [8]	8,251,445	35.6	1,856,218	82.3	950,343	21.4
1870 [8]	8,375,128	26.6	1,396,957	34.1	1,188,621	22.0
1880	11,597,412	26.0	1,065,967	19.4	1,700,784	34.9
1890	12,791,931	25.5	2,562,188	39.1	889,247	13.8
1900	13,046,861	20.7	1,091,950	12.0	1,345,318	18.0
1910	15,977,691	21.0	3,131,728	30.7	993,769	11.2
1920	13,738,354	14.9	367,209	2.8	635,368	6.5

It is apparent that we would have had a rapid increase of population had there been no immigration and if the Negro element had not increased. With the exception of the last decade it would appear that the Negro increase advances when immigration decreases and decreases as immigration increases. It is doubtful, however, if there is any real correlation between the two.

There has been quite a shift in the Negro population for some time. During the last decade the Negroes decreased in thirteen states (Alabama, Colorado, Delaware, Kentucky, Louisiana, Maine, Mississippi, Montana, Nevada, North Dakota, Tennessee, Vermont, and Wyoming), while the whites lost in only one. For a number of years there has been a heavy migration of the Negroes to the North and West, yet the South contains about 86 per cent of the Negro population. The percentage of Negroes in the population of the different Southern states ranges from 15.9 in Texas to 52.2 in Mississippi. Mississippi and South Carolina continued to be called "black states" in 1920 because over one-half of their populations were Negroes. South Carolina, however, is reported to have joined the "white" rank in 1924. The population of

[8] Corrected.

some counties is almost completely Negro. Issaquena county, Mississippi, is 90.7 per cent Negro; Tunica, Mississippi, 89.0; and Tensas, Louisiana, 85.3. Several of the large cities as Jacksonville, Montgomery, Charleston, and Savannah have more Negroes than whites. Alabama, Georgia, and Mississippi have about three-tenths of the Negro population. Georgia has over a million Negroes. She has more than thirty-three other states combined, and Washington County, Mississippi, has more Negroes than thirteen states combined.

The Chinese and Japanese. These two groups number less than 174,000 in our population, yet some consider them a problem. Both Chinese and Japanese are numerous in only a few states. About three-sevenths of the Chinese and seven-elevenths of the Japanese were in California in 1920. About nine-elevenths of the Japanese are in California and Washington, and over one-half of the Chinese are in California, Oregon, and Washington. The following table gives the states having more than 1,000 Chinese and Japanese in 1920.

State	*Japanese*	*State*	*Chinese*
California	71,952	California	28,812
Washington	17,387	New York	5,793
Oregon	4,151	Oregon	3,090
Utah	2,936	Illinois	2,774
New York	2,686	Massachusetts	2,544
Colorado	2,464	Washington	2,363
Idaho	1,569	Pennsylvania	1,829
Wyoming	1,194	New Jersey	1,190
Montana	1,074	Arizona	1,137

The Indians. In 1837 it was estimated that there were 302,498 Indians in the United States. In 1887, 243,299, the smallest number on record, were reported. Since that date there has been a steady increase. It is probable that the increase results from people now claiming to be Indian who

formerly did not make the claim because of the advantages this group receives from the government. The Commissioner of Indian Affairs states that there were 346,962 Indians in 1924. Every state in the Union reported Indians among its population in 1920. Oklahoma heads the list with 57,337. Arizona has 32,989; New Mexico, 19,512; California, 17,360; South Dakota, 16,384; North Carolina, 11,824; Montana, 10,956. All the other states report less than 10,000 Indians in their population. Most of the Indians live on reservations. Many of them are mixed with the whites. Because of the very small amount of prejudice toward them, they present no serious problem.

Urbanization of the population. The census reports class all places with 2500 or more inhabitants as urban. This is not a very good dividing line as it takes more than merely a few inhabitants to make a population urban. Furthermore, 8.5 per cent of our population dwell in incorporated places having fewer than 2500 inhabitants. On the above basis 51.4 per cent of our population in 1920 was urban. If we include the incorporated places with less than 2500, 59.9 per cent was urban. In 1880, 28.6 per cent of our population was urban; 35.4 in 1890; 40.0 in 1900; 45.8 in 1910; and 51.4 in 1920. In 1790 we had six cities with 8000 or more inhabitants; 285 in 1880, and 924 in 1920. We had five cities in 1800 with a population of 10,000 or more, 447 in 1900, and 603 in 1910. By 1920 there were 69 cities in the United States with a population of 100,000 or more. There were 23 cities containing 25,000 inhabitants or more that increased their population over 100 per cent during the last decade. The New England States are 79.2 per cent urban, the Middle Atlantic 74.9, and the Pacific 64.4 per cent. Over half of the population of fourteen of our states is urban. Rhode Island is 97.5 per cent urban, Massachusetts 94.8 per cent, New York, 82.7 per cent, and California 68.0 per cent. Within the last 100 years our urban population has increased over

one hundred fold. During the last decade the urban population increased 28.6 per cent; incorporated places of less than 2500 inhabitants increased 21.5 per cent; the rural increase was 3.1 per cent, and the open country only 0.6 per cent.

The density of population. In 1790 we had 4.8 inhabitants per square mile. By 1900 this number had increased to 25.1, and by 1920 to 35.5. If we consider only the settled regions, there were 9.4 inhabitants per square mile in 1790 and 80.4 in 1900. Rhode Island is our most densely populated state, having 566.4 inhabitants per square mile. Massachusets is second with 479.2 and New Jersey third with 420.0. Ten of our states have more than 113 inhabitants per square mile. These represent 7.5 per cent of the land area and 40.2 per cent of the total population. Eleven of our states have less than 10 inhabitants per square mile. These contain 37 per cent of the land area but only 5.1 per cent of the total population. Pennsylvania has a greater density than France. The density of the Southern States corresponds to that of Russia. The East Mississippi Valley States equal Czechoslovakia; the West Mississippi Valley States, Finland or Sweden; the Pacific States, Mexico or Norway. The Pacific States have 17.5 per cent and the Mountain States 3.9 inhabitants per square mile. The density of our mountain states is lower than that of any country in Europe, and with the exception of Bolivia, no country in South America has such a low density.

The age groups. About 10.9 per cent of our population are children under five years of age, 20.8 per cent between 5 and 14, 17.7 per cent between 15 and 24, 29.6 per cent between 24 and 44, 16.1 per cent between 45 and 64, and 4.7 per cent 65 or over. The age groups vary in different sections of the country and also among races. New sections of the country have an undue proportion of people in middle life. There are more children in the rural districts than in cities. Immigrants preponderate in the 20 to 44 age group.

The sex ratio. This ratio varies in different sections and with the different races. The population of the United States contains 2,089,243 more males than females. There is an excessive number of males among the native white and foreign-born, but females preponderate by 34,253 among the Negroes. There are 99.2 males to every 100 females among the Negroes and 104.4 males to every 100 females among the whites. About 60 per cent of our immigrants are males. This upsets the sex ratio in both Europe and in this country. In 1920 there were 695 males to every female among the Chinese, and 190 males to every female among the Japanese. More males than females are born among the whites, but male infants seem to be weaker and the infant mortality a little higher than for females. Women tend to live longer than men, part of which is due to the greater engagement of men in industry and war. New countries and metallurgical cities nearly always have an excess of males, while old settled sections, residential and textile cities have an excess of females.

Marital conditions. There seems to be a slight increase in the number of young married people in the United States. We tend to be marrying earlier for the past few decades. This is doubtless not true of all the groups, for the more cultured groups appear to be marrying later. About 35.1 per cent of the males and 27.3 per cent of the females fifteen years or over are unmarried; 59.2 per cent of the males and 60.6 per cent of the females are married, and 5.4 per cent of the males and 11.9 per cent of the females are either widowed or divorced.

Illiteracy. According to the 1920 census there were 4,931,905 people in the United States ten years of age or over who were illiterate. Of these, 1,242,572 were native whites, 1,763,740 foreign-born, and 1,842,161 Negroes. The number of illiterates varies widely with different races and different sections of the country. The illiteracy rate is highest among the Negroes especially those in the rural districts and lowest among

the white urban population of foreign or mixed parentage. The states having over ten per cent illiteracy are as follows: Louisiana 21.9, South Carolina 18.1, Mississippi 17.2, Alabama 16.1, New Mexico 15.6, Arizona 15.3, Georgia 15.3, North Carolina 13.1, Virginia 11.2, and Tennessee 10.3. The fact that illiteracy is declining in all sections and among all groups shows that progress is being made in this line.

Wealth conditions. Wealth seems to concentrate more and more in the hands of the few. It has been asserted that two per cent of the people in the United States own 60 per cent of the wealth, and that one per cent of the families have as much wealth as the remaining ninety-nine. In 1919 we had one man receiving a yearly income of $34,000,000, two receiving more than $16,000,000 each, five receiving over $5,000,000 each, and 248 receiving over $1,000,000 each. We have some 20,000 millionaires in the United States, to which group we are adding yearly. We created 12,000 during the four years of war, and if we could have another war doubtless we could double that number! It is asserted that there is one man in the United States worth between $600,000,000 and $750,000,000, three worth $300,000,000 each, seven worth $200,000,000 each, fourteen worth $150,000,000 each, twelve worth $100,000,000 each, twenty-five worth $75,000,000 each, eighty-five worth $50,00,000 each, and two hundred fifty worth $20,000,000 each.

Religious distribution. There are 25,900,456 Protestants in the United States, 17,549,324 Roman Catholics, 3,500,000 Jews, 249,000 Greek Catholics, and 489,669 Mormons. About one-half (48,022,171) of the people of the United States have no church connections. If some recent surveys reveal the true state of affairs, less than one-half of those who confess church connection take any interest in the church.

CHAPTER XV

FECUNDITY AND FERTILITY

Fecundity distinguished from fertility.—These words are often used as synonymous terms, but between the two a distinction should be made. Fecundity is the actual power of reproduction while fertility is the degree of reproduction. A woman may have the power of giving birth to twenty children, but give birth to only four. In that case her fecundity would be twenty children, her fertility four. There are all degrees of variation between fecundity and fertility. A member of any species may have the power of fecundity but for various reasons the fertility may be *nil*. Both fecundity and fertility vary widely with the different species, with members of the same species, and often with the same member of the same species. Ordinarily a cow gives birth to one offspring at intervals of about twelve months, while a sow may have eight pigs at a time and three litters a year. Again, one sow may give birth to ten pigs at one time and to eight at another time, while another sow gives birth to six pigs at one time and four at another.

Among the unicellular forms of life reproduction is by fission: hence the fecundity and fertility coincide. But among those forms of life which have different sex organs the fecundity depends on the number of ripe ova. The number of spermatozoa is so excessive that for all practical purposes this phase of the subject need not be considered. We may assume that in a state of nature the ripe ovum will ordinarily have an opportunity to become fertilized. Among some species, however, several ova ripen at the same time, but only one becomes

fertilized. Broadly speaking, we may assume a high degree of correlation between fecundity and fertility, among animals. Man, because of a superior intellect, has so many ways of controlling fecundity that with him there are all degrees of variation between fecundity and fertility. With primitive man there was a much closer correlation between the two than with highly civilized man.

The tendency to increase.—The increase of any species depends on four factors; first, the fecundity and fertility of that species; second, the care and protection of the young; third, the available food supply; and fourth, the activity of the enemies of that species.

1. *The tendency to increase among the lower forms of life.* Among all forms of life the rate of increase is far below the physiological possibilities; every species has a fecundity and fertility that greatly exceeds the rate of increase. "It has been calculated that a single cholera bacillus can give rise to sixteen hundred trillion of bacilli in a day, forming a solid mass weighing a hundred tons."[1] Within five years the slippery animalcule can produce enough protoplasm to make a mass equal to ten thousand times the size of the earth. If unchecked, within three years, a single mustard seed could produce enough to cover the dry land of the earth two thousand times. A common ox-eye daisy produces about sixty thousand seeds a season; while a moderately sized oak tree produces about ten thousand acorns in one season.

The larvæ of a single pair of flies may number 20,000. If Huxley's calculations are correct, the descendants of a single green-fly in one season would outnumber the population of China. Our common house-fly lays about six batches of eggs in its short life of three weeks. Each batch contains from 120 to 150 eggs. "At the end of summer, if all developed, and if there were six generations, the progeny of a single pair,

[1] Carr-Saunders, A. M., "The Population Problem," Oxford University Press, 1922, p. 54.

pressed together into a solid mass, would occupy a space of something like a quarter of a million cubic feet, allowing 200,000 flies to a cubic foot.'' [2]

An oyster may produce from sixteen to sixty million eggs in a season. ''The number of eggs found attached to the edible crab in the breeding season varies between half a million and three millions.'' [3] The aplysia is said to produce from two to three million eggs at a time. A turbot lays about fifteen million eggs a season. The eggs of a single codfish would number ten million and produce enough fish to fill the English Channel. Bridge says: ''In a Ling 61 inches long and weighing 54 pounds the ovaries contained 28,361,000 eggs; a cod of 21½ pounds 6,652,000. The least prolific of British food fishes is the herring, in which the number of ovarian eggs varied from 21,000 to 47,000 in four specimens examined.'' [4]

2. *The tendency to increase among the higher forms of life.* If unchecked, a single pair of rabbits would have about twelve million offspring in three years. Assuming no impediment, a pair of robins would have twenty billion descendants in twenty years. One pair of mice in twenty years could produce all the mice that could live in the world. Elephants are the slowest-increasing animals known, yet it would take only 2000 years to produce all the elephants that could live in the world. Darwin says: ''There is no exception to the rule that every organic being naturally increases at so high a rate, that, if not destroyed, the earth would soon be covered by the progeny of a single pair. Even slow-breeding man has doubled in twenty years, and at this rate in less than a thousand years there would literally not be standing room for his progeny. Linnaeus has calculated that if an annual plant produced only two seeds—and there is no plant so unproductive as this—and their seedlings next year produced two, and so on, then

[2] Thompson, J. A., ''Darwinism and Human Life,'' Holt, 1916, p. 82.
[3] Carr-Saunders, *op. cit.*, p. 53.
[4] ''Cambridge Natural History,'' Vol. *Fishes,* Cambridge University Press, 1904, p. 412.

in twenty years there would be a million plants. The elephant is reckoned as the slowest breeder of all known animals, and I have taken some pains to estimate its probable minimum rate of natural increase; it will be safest to assume that it begins breeding when thirty years old, and goes on breeding until ninety years old, bringing forth six young in the interval, and surviving till 100 years old; if this be so, after a period of 740 to 750 years there would be nearly ninety million elephants alive, descended from the first pair.'' [5]

In general the lower the form of life the greater the fecundity. Those species which offer no parental care average about 1,040,000 eggs per female a season. A very small per cent of these are fertilized and a much smaller per cent escape their enemies and develop to maturity. The species which have developed the protective trait of making some form of a nest, produce about 10,000 eggs per female a year. Those species which carry their eggs in pouches attached to the body produce about 1000 per female a season. If the species bring their young into the world alive, they average about 56 young per female per year.

If the enemies of a species increase more rapidly than that species, part of the enemies must either perish or eat other foods. An insect-eating bird requires around 250,000 insects a year. If the supply of insects diminishes, part of the birds either perish or eat other foods. The fecundity of a species seems to adjust itself to the conditions under which it lives. Although the fulmar lays but one egg at a time, its enemies are so few that it is said to be the most numerous bird in the world. The condor lays two eggs and the ostrich a score, but the condor has few enemies and is therefore the more numerous.

Sometimes the equalizing forces are distributed and one species will pass away and another become very numerous. The remains of many animals which long ago passed away

[5] ''Origin of Species'' (London), 1885, p. 51.

have been discovered. Other species have been introduced into territory where they had few enemies and became numerous. For example, the rabbit was introduced into Australia where it had no natural enemies and has become exceedingly troublesome. The cotton boll-weevil has few natural enemies in the southern part of the United States and has become exceedingly numerous.

Human fecundity.—The human species, like all other forms of life, has an excessive fecundity. It is estimated that the normal ejaculation of a man contains 226,000,000 spermatozoa, and that the ovaries of a woman contain about 75,000 ova. Not more than 500 of these ova, however, develop to maturity during the fertile period of a woman's life, and not more than 20 or 30 can possibly be used in reproduction. One ovum matures each lunar month between puberty and the menopause, and for each matured ovum the male develops at least 850,000,000 spermatozoa. Since only one ovum and one spermatozoön are needed in each reproduction, we gain some idea of the latent reproductive power of human beings.

It is to the female that we look for any increase or decrease in the species; for the male of every species, it seems, has a superabundance of fertilizing power. The reproductive power of the female, on the other hand, depends primarily on three factors; namely, (1) Fecund cycles, (2) Length of fecund life, (3) Fertility.

1. *Fecund cycles.* Some scholars think that, as civilization has developed, the number of oestrous of woman has changed from one to twelve per year. It is known that animals placed in captivity or domesticated often experience a change in sexual season. With some animals the change is in the direction of greater fecundity; while with others a decrease in reproductive power is experienced. If the change is great enough to cause disorganization of the generative process as with some carnivorous animals, there is a decrease in fecundity; but, in general, there is no disorganization, and conse-

quently an increase in reproductive power is experienced. Carr-Saunders,[6] reviewing the works of Marshall, Heape, and Darwin, shows several cases of an increase in reproductive power among animals due to domestication or captivity. For example, the red deer in a natural state experiences two dioestrous periods, lasting three weeks, but in captivity the fecund season continues throughout the year. The otter breeds but once a year in the wild state, but in captivity oestrous may occur monthly throughout the year. The wolf, fox, and wild dog of South America in the natural environment breed only once a year, but in captivity the periods become semi-annual. In the wild state bears are monoestrous, but in captivity oestrous may occur for two or three months. The wild rabbit is fecund from February to May, but the domesticated rabbit is fecund for practically the whole year.

The cycles with monkeys and men occur at short intervals. With monkeys, however, copulation can take place at any heat period but ovulation is limited to certain periods. With civilized man ovulation is not limited to a particular season and conception may follow coition at any period. The evidence, however, from studies of the most preliterate tribes seems to indicate that primitive man had but one reproductive period during the year, just as do many animals in their wild state. Johnston says the Indians of California "have their rutting seasons as regularly as have the deer, the elk, the antelope, or any other animal."[7] Powers says spring "is a literal St. Valentine's day with them, as with the natural birds and beasts of the forest."[8] Of the Watch-an-dies of Australia, Oldfield says: "Like the beast of the field, the savage has but one time for copulation in the year. About the middle of the

[6] Compare "The Population Problem," Oxford University Press, 1922, pp. 94–95.

[7] Schoolcraft, H. R., "Archives of Aboriginal Knowledge" (Philadelphia), 1860, Vol. IV, p. 224.

[8] "The Tribes of California," *U. S. Geog. and Geol. Survey*, Vol. III, 1877, p. 206.

spring . . . the Watch-an-dies begin to think of holding their grand semi-religious festival of Caa-ro, preparatory to the performance of the important duty of procreation.''[9] Many of our present feasts and holidays seem to have originated in tribal society as special coition celebrations where reproduction took place. After reviewing this material, Carr-Saunders concludes: ''This evidence all points to a former condition when conceptions could only take place at one season of the year. We must suppose that it has gradually become possible for copulation to be followed by conception at any period, and that therefore fecundity has increased. Some light is thrown upon the causes that underlie these changes by a reference to certain facts regarding other species. [The evidence reviewed suggests] . . . the establishment of a different variety of sexual cycle in which the dioestrous periods occur fortnightly instead of monthly. If this interpretation is correct, it would mean that the sexual cycle is evolving in the direction of a still greater fecundity.''[10]

2. *The length of the fecund life.* There is a small per cent of the human family that never experiences a fecund life or fecund cycle, but is sterile. Preliterate people generally consider sterility as a curse of the gods and take every precaution to prevent it, yet it appears to be common among them. According to Spencer and Gillin[11] sterility is common among the Australian tribes. Bancroft says of the Chinooks: ''Barrenness is common, the birth of twins rare, and families usually do not exceed two children.''[12]

No satisfactory explanation is offered for the large amount of sterility among preliterate people. Some writers think the females responsible for most sterility; others consider a large amount due to the males. Some authors attribute much

[9] ''Aborigines of Australia,'' in *Trans. Ethn. Soc.*, N. S. (London), 1865, Vol. III, p. 230.
[10] ''The Population Problem,'' Oxford University Press, 1922, p. 94.
[11] ''The Native Tribes of Central Australia'' (London), 1899, p. 52.
[12] ''The Native Races of Pacific States of North America'' (London), 1875, Vol. I, p. 242.

of the barrenness among preliterate people to gonorrhea, which is thought to be a very old and widespread disease. Male sterility due to other diseases is evidently relatively recent. Sterility on the part of males has perhaps not varied much from one epoch to another, and barrenness among women seems not to have increased with civilization and the development of new diseases. There are, however, several authors who consider that much of the sterility among civilized people is due to venereal diseases. Popenoe [13] accounts for sterility as being due to spermatoxins, lack of a healthy, well-ordered life, unsatisfactory marital habits, defects in the reproductive mechanism, and tumors of the uterus. He further states that much sterility is relative, and that probably the proportion of sterile marriages in the city, excluding immigrants and their children, as compared with those of the country is 3 : 1.

According to Ploss and Bartels (''Das Weib,'' Vol. I, Ch. VI.) the reproductive organs of both males and females among preliterate people are much smaller than those of civilized people. It is not known that this smallness affects fecund power. Carr-Saunders thinks it is not ''unreasonable to assume a connection between a lesser development of the reproductive organs and a lower degree of fecundity.'' [14] Other writers claim that the reproductive organs of the Negro group are unusually large.[15] It is generally agreed that preliterate people do not experience the same degree of sexual excitement that civilized people experience. Modern man has many ways of whetting the sex appetite that were not available to preliterate man. It may be that the smallness of the reproductive organs is due to the lack of sexual excitement, and this in turn may be the cause of so much sterility. The copulative desire appears to be stronger among civilized than preliterate man.

[13] ''Problems of Human Reproduction,'' Williams and Wilkins, 1926, pp. 96–128.

[14] *Op. cit.*, p. 97.

[15] Compare Duckworth, W. L. H., ''Morphology and Anthropology,'' Cambridge University Press, 1904, pp. 377–78, and Johnson, Sir H. H., ''The Negro in the New World,'' London, 1914, p. 9.

This lack of excitement and copulative desire rendered fertilization less likely to occur.

The fecund period for males is ordinarily from puberty to old age. For females it is more limited, generally extending from fifteen to forty-five, though with some considerably longer. The age at which menstruation begins appears to be influenced by climate, race, and culture.

After reviewing the material Carr-Saunders thinks there is "no very close or definite connection between climate and menstruation."[16] Engelmann believes there is some connection. His figures are as follows:[17]

Zone	*Average Age for Menstruation*
Tropics	12.9 years
Temperate	15.5 years
Cold	16.5 years

According to Krieger[18] the following exists:

Place	*Average Age for Menstruation*
Christiania	16 years 9 months 25 days
Berlin	15 years 7 months 25 days
London	15 years 1 month 14 days
Lyons	14 years 5 months 29 days
Marseilles	13 years 11 months 11 days
Calcutta	12 years 6 months 0 days
Sierra Leone	10 years 0 months 0 days

Joachim, Engelmann, Krieger, and Carr-Saunders agree that race influences the time of menstruation. Krieger, quoting from Joachim, gives the following figures for girls in Hungary:[19]

Race	*Average Age for Menstruation*
Slavonic	16 to 17 years
Magyar	15 to 16 years
Jewish	14 to 15 years
Styrian	13 to 14 years

[16] *Op. cit.*, p. 91.

[17] *Trans. Amer. Gyn. Soc.*, 1901, Vol. XXVI. Quoted by Carr-Saunders, *loc. cit.*, p. 91.

[18] "Die Menstruation," Berlin, 1869, p. 52. Quoted by Carr-Saunders, *loc. cit.*, p. 91.

[19] *Ibid.*, p. 24. Quoted by Carr-Saunders, *loc. cit.*, p. 91.

Jewesses menstruate earlier than the average age for girls in the countries in which they dwell. The sex desire is thought to be much stronger among some races than others. It is said to be stronger among southern than northern Europeans, and stronger among Negroes than among whites. This may be due to the selective process of a hot climate. This, however, does not explain why the Eskimo begins to menstruate at thirteen years of age. Whether or not this early menstruation of the Eskimo is due to the survival of a racial trait or to the manner in which they live, cannot be stated.

According to investigations which have been made, menstruation is influenced by culture and general surroundings. It is known that domesticated animals bear a larger number of young at a birth than their cousins in a wild state. The domesticated hen lays eggs most of the year, but her wild cousins produce only six to eight. Wild rabbits breed four times per year and produce not over six at a time, while tame rabbits have six or seven litters a year and from four to eleven at a litter. Darwin mentions a case where one litter contained eighteen, all of which survived. The wild sow breeds but twice per year and bears from four to eight pigs, but the domesticated sow breeds three or four times a year and "is considered of no value unless she produces at least eight at a birth." Darwin says: "With hardly an exception, our domesticated animals, which have been long habituated to a regular and copious supply of food, without the labor of searching for it, are more fertile than the corresponding wild animals."[20] He thinks the period of gestation "is shorter in the improved breeds of the pig, and in the larger breeds of the ox, than in other breeds of these animals."[21]

If a change of food supply and better surroundings have influenced the fertility of animals, it is reasonable to suppose that the same thing occurs with human beings. Contrary to

[20] "Variations of Animals and Plants under Domestication," Appleton, 1896, Vol. II, p. 89.
[21] *Ibid.*, p. 101.

popular opinion, investigations reveal that menstruation begins later and ends earlier among the laboring groups than among the upper classes. Thus, the better situated groups have a longer period in which to reproduce. Mayer found that among 3000 women of the upper class, the average age at which menstruation began was 14.69 years while among 3000 women of the lower class it was 16.0 years.[22] Krieger submits the following table:[23]

	Brienne de Boisment		*Tilt.*		*Krieger.*		*Ravn*	
	Yrs.	*Mths.*	*Yrs.*	*Mths.*	*Yrs.*	*Mths.*	*Yrs.*	*Mths.*
Upper class...	13	8	13	$5\frac{1}{2}$	14	$1\frac{1}{6}$	14	3
Middle class..	14	5	14	$3\frac{1}{2}$	15	$4\frac{2}{6}$	15	$5\frac{1}{2}$
Lower class...	14	1	..	..	16	$8\frac{1}{6}$	15	$5\frac{1}{4}$

3. *Fertility.* While among us every eightieth or ninetieth birth is a twin, triplets fairly common and quadruplets known, a twin birth among preliterate people seems to have been very rare and triplets and quadruplets unknown. Preliterate people marveled at a twin birth and usually considered that the birth of one or both of the twins was caused by some wandering evil spirit. Consequently, one or both were usually killed. Among some tribes, however, the mother and father of twins were greatly honored, had their names changed, and received a badge of distinction.

Practically all students testify that preliterate people have very small families, usually numbering two or three children. Murdoch says of the Eskimos, "The women are not prolific. Although all the adults are or have been married, many of them are childless, and few have more than two children. One

[22] *Op. cit.*, p. 21. Compare Carr-Saunders, *op. cit.*, p. 92.
[23] *Ibid.*, p. 24. Compare Carr-Saunders, *op. cit.*, p. 92.

woman was known to have had at least four.''[24] Of the Nootka tribe of Indians, Bancroft says: ''Women rarely have more than two or three children.''[25] ''It is a very rare occurrence,'' writes Catlin, ''for an Indian woman to be 'blessed' with more than four or five children during her life; generally they are contented with two or three.''[26] Spencer, speaking of the native tribes of northern Australia, says: ''The natives, in many parts, are certainly not prolific, and, under normal conditions, they do not, apparently, kill their children.''[27] In a note he adds: ''The relatively small number of children is not infrequently to be noticed among these tribes. While I was at Oenpelli a man . . . came into camp with his family including six wives, but only four children. The age of the wives must have varied from fifteen to fifty.''[28]

Preliterate people, it would appear then, have small families averaging two to three children; and in rare cases from four to eight. If fecundity increases with civilization, we should find larger families as civilization increases. This hypothesis seems to be true because we find larger families where one child is born at a time and also find more families with twins, triplets, and quadruplets. Under Francis I French families averaged seven children, and this seems not to have been an exception with other European nations of that date. Some writers mention exceptionally large families. Aristotle tells of a woman who had four children at a birth four times in succession. Menage mentions a woman who gave birth to 21 children in seven years. Mulhall mentions one woman who had 57 children, another who had 69, and another who had 52, never less than three at a birth.

[24] ''Ethnological Results of the Port-Barrow Expedition,'' 9th, A. R. B. E., 1884, p. 38.

[25] ''The Native Races of the Pacific States of North America'' (London), 1875, Vol. I, p. 197.

[26] ''North American Indians'' (London), 1842, Vol. II, p. 228.

[27] ''The Native Tribes of the Northern Territory of Australia,'' Macmillan, 1914, p. 11.

[28] *Ibid.*, p. 48.

Ordinarily a woman can give birth to a child every year and a half during her reproductive period. If this fecund period extends from 15 to 45 years only, she would be able to give birth to 20 children. Many women have longer fecund periods, and some can have children at intervals of ten months. The papers of March 18, 1924, told of a German woman who had recently given birth to her 27th child. Such, of course, is an unusual fertility. Matthews Duncan[29] estimates that a normal woman of civilized races, living in wedlock throughout her fecund period, should, under favorable circumstances, bear from ten to twelve children.

In the preceding discussion something of the rapidity of the increase of population has been shown. If we examine further it becomes more evident, even with our modern ways of limiting population, such as birth control, disease, war, and slaughtering in industry, that fertility is far in excess of population need. For example, the population of the world was about 871,000,000 in 1871, but by 1914 it had increased to 1,649,000,000. Between 1870 and 1920 the population of the United States increased 165 per cent. At our present rate of growth we should have 125,000,000 by 1930; 150,000,000 by 1940; and 180,000,000 by 1950. When Washington became President of the United States we had about 4,000,000 inhabitants. Since that time we have increased our population 25 times. If we should continue at the same rate until the year 2045, we would have 2,500,000,000 people in the United States.[30] Between 1608 and 1760 about 5800 French immigrants came to Canada and within three centuries they are said to have increased to 3,500,000, or six hundred times the original number. The population of England and Wales has multiplied three and one-half times in one hundred years and is now increasing at a rate of over three and one-half million per decade.

[29] Compare "Fecundity, Fertility, and Sterility" (Edinburgh), 1866, p. 112.

[30] Compare *World's Work*, Vol. 41, December, 1920, p. 114.

According to G. H. Knibbs the annual increase of population between 1906 and 1911 for certain countries was as follows:[31]

Country	*Rate per 1000*	*Years to Double*
France	1.6	436
Norway	6.6	105
Sweden	8.4	83
Austria–Hungary	8.5	82
Spain	8.7	80
England	10.4	67
Japan	10.8	64
Holland	12.2	57
Germany	13.6	51
Rumania	14.8	47
United States	18.2	38
Australia	20.3	34
Canada	29.8	24

A single pair of human beings could have produced the present world population in 1800 years. If we take France's low rate of increase between 1906–1911, and the population of the world at 1,649,000,000 in 1914, we find that a single pair of human beings could have reached these figures in less than 1782 years. Even at that low rate population would increase 100-fold in 400 years. Swinburne says: "Assuming that one couple, say Adam and Eve, living six thousand years ago, according to the Biblical notion, were the parents of all mankind, and that at the end of a hundred years there were four people, and so on, the present population of the world would be more than two million billion, or $2x10^{18}$; or more than a thousand people per square yard over land and sea."[32] Even if we take France's very low rate of increase of .0016 just before the World War, it would take only 12,000 years to

[31] Compare "The Mathematical Theory of Population," etc., *Census Commonwealth Australia*, Appendix A, Vol. I, 1917.

[32] "Population and the Social Problem." Copyright 1924 by Macmillan & Co., Ltd. (London); p. 16.

produce the present world population. But according to Knibbs the current rate of increase is high enough to double the population every 60 years. At that rate there would be 34,000,000,000 people in the world by the year 3000.

Civilized man has an excessive fecundity and abundant fertility which is constantly underestimated. The fecundity of man is at least twelve hundred times as great as is needed to keep up population. Of woman it is at least four times as great as needed.

CHAPTER XVI

THE CONTROL OF POPULATION BY POSITIVE METHODS

The control of numbers has ever been a pertinent, if not a permanent question, among tribes, races, and nations. Each tribe, group, or nation has faced the issue and although many leaders have opposed any method of elimination or restriction, the members of the various groups have used one or more methods of control. Just why one should prefer one method, as abortion, and another tribe in similar circumstances, another method, as infanticide, cannot be explained on an economic or religious basis. There has been a tendency, however, for the methods of control to change as society has advanced, but this is not tantamount to saying that these methods *per se* represent an ethical advance.

1. **Killing the old.**—Preliterate people did not wish to bear unnecessary economic burdens, and because old people were a burden to a wandering, hunting tribe, they were often killed or abandoned. The elimination of the old appears to have been an early custom among preliterate people and to have been very widespread. The practice is known to have existed among the Tasmanians, certain tribes of Eskimos, American Indians, and Africans. It is not meant that all tribes killed their old or sick; many cared for their aged and infirm very tenderly. Some of the old people, not wishing to be a burden, committed suicide. Doubtless those who commit suicide and those who kill the old, feel that they are performing deeds of kindness. According to Williams and Calvert, the Fijians in destroying their decrepid parents, "sometimes plead affection, urging that it is a kindness to shorten the miserable period of

second childhood. In their estimation, the use of a rope instead of the club is a mark of love so strong that they wonder when a stronger is demanded. In many cases, however, no attempt is made to disguise the cruelty of the deed. It is a startling, but incontestable fact, that in Fiji there exists a general system of parricide, which ranks too, in all respects, as a social institution.'' [1]

While many tribes killed their aged by drowning, the most common way was to abandon the infirm when they broke camp. ''The Bushmen,'' according to G. M. Theal, ''frequently forsake their aged relations when removing from place to place for the sake of hunting. In this case they leave the old person with a piece of meat and an ostrich egg-shell full of water; as soon as this little stock is exhausted, the poor deserted creature must perish by hunger or become the prey of wild beasts.'' [2]

2. **Witchcraft.**—Among preliterate and superstitious people witchcraft is widespread and no doubt influenced population from the quantitative standpoint. It is very difficult to get preliterate people to conceive of a natural death; the tendency is to attribute death to the magic or charms of some enemy. An effort is made to find out the enemy and his or her death often follows. Maugham reports that in British Central Africa the belief in witchcraft ''was so general that deaths due to it were in the larger villages matters of daily occurrence.'' [3] According to Miss Kingsley, witchcraft was the greatest single cause of death in Africa.

3. **Human sacrifice.**—In many preliterate rites sacrifice played a very important part and often human sacrifices were a part of the ceremony. Some required the wife to be killed when the husband died and buried with him. In case of a great disaster, a beautiful maiden was sacrificed to take away

[1] ''Fiji and the Fijians'' (New York), 1859, p. 145 .
[2] ''Yellow- and Dark-Skinned People of Africa'' (London), 1912, p. 19.
[3] Maugham, R. F. C., ''British Central Africa,'' p. 276.

the sins of the people. Human sacrifice, however, did not reduce the population materially.

4. **Abortion.**—The numerous testimonies of travelers and investigators show that abortion was almost universal among preliterate peoples. These groups seem to have had a rather definite idea of the proper number of children they could care for, and resorted to abortion to keep the number in proper bounds. Some tribes used certain magical rites to procure abortion, but these, we may say, were ineffective. The drinking of certain decoctions was common among some tribes, but the efficacy of these is questionable. Most frequently abortion was procured by various violent physical means which were both harmful and dangerous. Many tribes prohibited parturition during the period of lactation and when this period was extended for six or seven years as among the Pima Indians, pregnancies were relieved by abortion. Among the Cheyennes a woman was not permitted to have a second child until the first was ten years old. In regard to the small number of illegitimate children among the Nagas of Assam, Davis says: "It is impossible to resist the conclusion that they are made away with immediately after birth, or that abortion is procured. The Aos have admitted to me that abortion is always procured in such cases. . . . The custom being one that is approved by Nagas, it is impossible to expect them to give information of the occurrence of such cases."[4] B. C. Allen, speaking of the hill tribes of India, says: "Amongst the Kupis, where marriage by service is common, a strange custom is in force. Cohabitation is freely permitted during the time the lover is serving in the house of his father-in-law, and pregnancy entails no disgrace, but the girl must not bring forth a living child. About the seventh month after conception an old woman skilled in such matters is called in. This worthy dame locates the position of the baby's head in the womb, and strikes it a sharp blow with a flat stone, with the

[4] "Census of Assam," 1891, p. 249.

result that premature delivery takes place, and the child is born dead." [5]

As early civilization developed abortion apparently became more widespread. "A long chain of writers," says Lecky, "both pagan and Christian, represent the practice as avowed and almost universal." [6] Such outstanding leaders as Plato, Aristotle, and Mohammed did not oppose it and in fact "no law in Greece or in the Roman republic or during the greater part of the Empire condemned it." [7] Although some of the Hebrew prophets condemned abortion, active opposition seems to have developed with the spread of the Christian religion. The Christians opposed the procuring of miscarriage on the basis that the child in the womb had a guardian angel and possessed a soul. Abortion, therefore, was equivalent to adult murder. Opposition to abortion is now widespread,[8] yet it appears to be practiced in all countries and is common in India, China, Japan, Turkey, and the United States.

It is impossible to say how effective abortion has been, and is, as a means of controlling population. Without doubt it was one of the chief means of control among preliterate people. Bancroft says of the Nootka Indians: "Women rarely have more than two or three children, and cease bearing at about twenty-five, frequently preventing the increase of their family by abortion." [9] Judging on this basis and knowing the small number of children preliterate women have, it must be quite an important item. The fact that we have no statistics on abortion opens the door for wild guesses as to the prevalence of the practice among highly civilized people. Wilkins writing in 1887, estimated that there were 10,000 abortions monthly in Bengal. Lepage thinks there are as

[5] "Census of India," 1901, Vol. IV, Part I Report, p. 68.
[6] "History of European Morals" (New York), 1877, p. 21.
[7] *Ibid.*, p. 21.
[8] Abortion became legal in Russia in 1921.
[9] "The Native Races of the Pacific States of North America" (London), 1875, Vol. I, p. 197.

many abortions as births in Paris and that 80 per cent are induced. According to records there are about 20,000 abortions a year in Paris and some think there are two or three times as many "silent abortions." Hirsch claims that abortion prevents annually 2,000,000 births in the United States, 400,000 in Germany, 50,000 in Paris, and 19,000 in Lyons. Etienne Lamy thinks there are at least 300,000 abortions annually in France. "In modern society," writes Reuter, "it is a criminal act to induce abortion and the practice is contrary to prevailing medical ethics. Yet the *Medical Record* estimates that two million abortions are performed annually in the United States. The same authority gives eighty thousand as the number performed annually in New York. Midwives and medical quacks are occasionally punished—about one case in one thousand is brought before the authorities in New York—but the practice is very lucrative. Court investigations have shown that there are at least two thousand persons in New York who make a profession of inducing abortion. Abortionist advertisements are numerous and abortifacients are rather freely advertised and sold." [10]

There are good reasons for believing that abortions are decreasing in countries where better and more effective contraceptive knowledge is increasing. It is almost inconceivable that people will resort to the dangerous practice of abortion when they have effective contraceptive knowledge. East thinks that abortion "is decreasing in England, Holland, France, Australia, New Zealand, and the United States, due to the spread of the knowledge of birth control methods." [11]

5. **Infanticide.**—This mode of controlling population, although depending on the life situation of the group, is or has been more widespread than abortion, and like it, is chiefly an economic measure. The paramount question seems to be: How

[10] "Population Problems," Lippincott, 1923, pp. 129–30.
[11] "Mankind at the Crossroads" Scribner, 1923, p. 263.

many can the group support? The practice of infanticide, however, has a eugenic bearing, in that the deformed and weak, who are considered a greater burden than normal offspring, and girls, who are regarded as being of less economic value than boys, are more likely to be killed than healthy male infants. Moreover, infanticide is practiced most often upon younger children. In the case of two small children, many preliterate tribes sanction the killing of one as both would be too great an impediment in their tribal wanderings. "In the Hawaiian Islands," writes Harold Wright, "all children after the third or fourth were strangled or buried alive. At Tahiti, fathers had the right (and used it) of suffocating their newly born children. The Areois, in the Society Islands, imposed infanticide upon the women members by oath. In fact, although a religious sanction is often given to the slaughter of infants among savage tribes, this practice or others restricting increase seem to be generally prevalent among those peoples who have reason to fear that their food supply may prove insufficient for their support, while in some countries infants are destroyed in times of scarcity only." [12]

Some tribes in Torres Straits destroy some of their children if they are all of one sex, "it being held proper to have an equal number of boys and girls." [13] For some strange reason, among certain tribes, children who cut their upper teeth before their lower ones are killed; while in others twins meet a similar fate. Such tribes believe a twin birth to be unnatural, attributing the fatherhood of one to some wandering demon; consequently both are cast into the brush for the wild animals, and the mother is required to spend a year in purifying herself. Rivers, writing of the Todas, says: "Twins are called ömumokh, and it is the custom to kill one of them, even when both are boys. If they should be girls, it is probable

[12] "Population," Harcourt, 1923, p. 4.
[13] Hunt, A. E., *Jour. Anthro. Inst. of Great Britain and Ireland*, Vol. II, 1899, pp. xxxiii.

that both would be killed, or, at any rate, would have been killed in the past.''[14]

Many tribes required a definite period, sometimes as long as ten years, between births; any children born during these intervals were killed. The Tenguas required a lapse of seven or eight years between children and killed those born during this interval. Some tribes thought it best to kill the first born, especially if it were a girl.

The manner of deciding whether or not a child was to be permitted to live varied from tribe to tribe. Among some groups the mother alone made the decision; while among others, the father and mother together. Some required the decision of the five nearest relatives; others left it with the grandparents. Among the Greeks, this important determination was sometimes left to the elders, and sometimes to the father, who publicly announced ten days after the birth of the child whether he would keep it or not.

Various methods of disposing of the unwanted infants were employed. Some children were placed out for the wild animals, some were strangled, and others were permitted to perish. Sometimes the father or grandfather struck the infant across its mother's knee and then hit it on the head. Featherman says of the Bushmen: ''When their supply of provisions begins to fail, or when they are pursued by enemies, or when a wife has been abandoned by her husband, their children are considered to be a burden too heavy to be borne, and to get rid of them they will strangle them, cast them away in the desert, or even bury them alive.''[15]

Infanticide appears to have been common among the Jews, Babylonians, Egyptians, Syrians, Phœnecians, Greeks and Romans, and to have met with little or no opposition. Such outstanding men as Plato, Aristotle, Lycurgus, Solon, Seneca,

[14] ''The Todas'' (London), 1896, p. 480.
[15] ''A Social History of the Races of Mankind'' (London), 1881, Vol. I, pp. 532–33.

Suetonius, and Pliny seem to have not opposed the practice. Pliny thought infanticide a necessity because of the over-abundant fertility of women. Mohammed, however, opposed it and it has been less widespread in Turkey than abortion.

Philo, in the first century A.D. entered the first protest against infanticide. Some of the best pagan thought and laws condemned the practice but real opposition developed with the Christian religion. "From the first," writes Dr. Goodsell, "Christian teachers made no distinction in the degree of guilt between abortion and infanticide. Both were crimes, excluding the guilty parent from the saving grace of the sacraments until the final hour of life. In the teaching of the Church the unborn fœtus, no less than the infant just brought into the world, was the temple of an immortal soul which would be condemned to everlasting punishment if ruthlessly cut off from life without the purifying rite of baptism. It can hardly be questioned that the doctrine of the Church concerning the damnation of the unbaptized constituted an important motive for its condemnation of child murder in all its forms."[16] The Church, however, was not always successful and sometimes had to make compromises with its various groups. For example, when the Norsemen of Iceland were converted to Christianity in 1000 A.D., "they stipulated that the right of slaying their infants should not be removed." Although the Church at first made compromises in its endeavors to stop infanticide, it began to work indirectly by securing the enactment of laws which placed the practice under ban and thus perhaps reduced it considerably. "Abortion and infanticide were freely resorted to in the pagan world," says Ross, "but were brought under the ban, first of the Church and then of the law, until they ceased to play much of a rôle in the regulation of numbers."[17]

[16] Goodsell, W., "The Family as a Social and Educational Institution." Copyright 1915 by The Macmillan Company, p. 169. Reprinted by permission.

[17] "Standing Room Only?" Century, 1927, p. 263.

With infanticide, like abortion, we have no statistics to show us how it has affected population. Evidently it was one of the chief, if not the principal means of control among many tribes. Most families reared few children and undoubtedly the small number was often due to infanticide. According to Dobrizhoffer the Abipones of South America "do not bring up more than two children to a family, the others being killed to save trouble."[18] It appears to have been exceedingly common among the Polynesians. "The first missionaries," writes Ellis, "have published it as their opinion that not less than two-thirds of the children were murdered by their parents."[19]

In modern times infanticide is undoubtedly quite common, especially in non-Christian countries. Norman, writing in 1875, quotes from a Chinese teacher as follows: "Infanticide is very common among the poor, and even people in pretty easy circumstances. There is hardly a family in which at least one child has not been destroyed, and in some families four or five are disposed of." He says: "Another man, who is now a member of the Christian Church, says that in his village there is hardly a family that has not destroyed two or three children . . . A lady contributor to the *North China Daily News* furnishes the following statistics: 'I find that 160 Chinese women, all over 50 years of age, had borne 631 sons and 538 daughters. Of the sons 366 or nearly 60 per cent had lived more than 10 years; while of the daughters only 205 or 38 per cent had lived 10 years. The 160 women had, according to their own statement, destroyed 158 of their daughters; but none had ever destroyed a boy. As only four women reared more than three girls, the probability is that the infanticides confessed to are considerably below the truth. I have occasionally been told by a woman that she had forgotten just how many girls she had had more than she wanted. The

[18] "An Account of the Abipones" (London), 1822, Vol. 11, p. 97.
[19] "Polynesian Researches" (London), 1832, Vol. 1, p. 197.

greatest number of infanticides confessed to by any one woman is eleven.' '' [20]

Reports from India and some other more backward countries show the importance of infanticide there. The best estimates show that about one half of the female infants are or were killed. Infanticide is far from unknown in Europe and the United States, but there are no reliable statistics available. ''In West European society,'' says Reuter, ''infanticide is no longer within the mores of the group. As a practice it still remains, especially in the case of illegitimate children and, to a certain extent, in the case of defective and deformed infants.'' [21]

Infanticide and abortion decreased in importance with the development of celibacy and postponement of marriage. In countries where contraceptive knowledge has spread they have come to be less important means of control. As birth control spreads we can expect these evils practically to disappear.

6. **War.**—Many preliterate tribes were in almost continuous warfare. It would appear, however, that it was more a means of recreation or sport than of actual bloodshed or killing. Among some tribes, as many of the Australians, it was usually so regulated that there was little bloodshed. If serious complications developed, unregulated warfare was engaged in and in such wars a number were killed. Even among the Bushmen, who caused terror in a large part of Africa, there was little loss of life. The American Indians were, perhaps, more warlike and more sanguine than most people living in tribal society. While some tribes were very peaceful and rarely engaged in war, most of them were rarely on peaceful terms with their neighbors. War was held up to the young as the chief object of life. Jones, himself, a member of the

[20] ''Peoples and Politics of the Far East'' (London), 1875, p. 290.
[21] ''The Population Problem,'' Lippincott, 1923, p. 129.

Ojebway tribe says: "When they are young a spirit of war is instilled into their bosom; and in order to excite them to courage and ambition, the parents and the old wise men recount to them the wonderful exploits of the braves in former days, such as a single warrior stealing up secretly to a village, killing a number of the enemy, taking off their scalps, and making his escape before the remainder were apprised of the slaughter." [22]

Feuds are the most destructive form of war among preliterate peoples. Many are apparently unable to understand a natural death, and when a death occurs, regardless of the cause, they try to ascertain if an enemy caused it. The medicine men locate the enemy or the direction of the enemy. Sometimes not knowing the enemy but the direction, they march on, killing all before them. After a feud is once started it is long enduring and results in frequent bloodshed. In general, we can say most preliterate tribes lived in a state of intermittent if not constant warfare; that the feud was the most deadly of the vicious forms of war, but in the main, not many were killed in these tribal wars. A few, however, were quite deadly as shown by the fact that some tribes had three or four females to every male. (Preliterate people did not kill members of their own tribes, and rarely killed the women and children of enemy tribes.) Speaking of the Bakalai, du Chaillu says, that "when war has rarely broken out in the country there is no rest or safety. No man or woman in any village can take a step in any direction, day or night, without fear of death. . . . At last whole districts are depopulated; those who are not killed desert their villages." [23]

As civilization has advanced, warfare has become more destructive, and the loss of life greater. No one knows how many have lost their lives on the battle field. It has been esti-

[22] "History of the Ojebway Indians" (London), 1861, p. 64.
[23] "Explorations and Adventures in Equatorial Africa" (London), 1861, p. 386.

mated that up to 1914 over 15,000,000,000 sacrificed their lives to the God of War. Bogart thinks that 4,449,000,000 were killed in wars between 1790 and 1913. France is said to have lost 3,000,000 in wars between 1792 and 1914. It is estimated that 184,000 were killed in the Franco-Prussian War; 700,000 in our Civil War; 10,000 in the Spanish-American War; and 9,998,000 in the World War. Willcox thinks 10,000,000 is a conservative estimate of the number who died as a direct result of their military or naval services during the World War.[24] According to Kirby Page, the human cost of the World War was as follows:

20,000,000	wounded
13,000,000	dead civilians
10,000,000	known dead soldiers
10,000,000	refugees
9,000,000	war orphans
5,000,000	war widows
3,000,000	presumed dead soldiers
3,000,000	prisoners

Page's estimate of the loss of life in the World War is perhaps too conservative. Conservative statisticians estimate that for every soldier that was killed, five civilians died of hunger, disease, massacre, exposure or heightened infant mortality. Taking all these things into consideration, the war reduced the population of the world by perhaps 40,000,000.

7. **Disease.**—It would appear that diseases are often due to certain forms of plant and animal life which have developed into parasitic nature. "What has happened," writes Carr-Saunders, "has been that certain species, belonging to different groups in the animal and vegetable kingdoms, have taken to a parasitic mode of life." [25] It would seem that diseases have developed with civilization and are, therefore,

[24] "Population and the World War; a Preliminary Survey," *Journal of Am. Statis. Assn.*, Vol. 18, June, 1923, pp. 699–712.

[25] "The Population Problem," Oxford University Press, 1922, p. 156.

mostly of recent origin; but this is true "only when a broad view is taken of human history. It is known, for instance, that tuberculosis, plague, leprosy, and bilharzia existed in ancient Egypt. Where and when diseases originated we cannot say, but the fact that certain widely-spread diseases can be traced to a previously limited and localized incidence—cholera, for instance, to the Ganges Valley—suggests that such diseases originated in those places in relatively recent times and spread thence. . . . It is further of great interest to note that certain diseases may have evolved in very recent days. Diphtheria may date from the beginning of the last century and trench fever may be a new disease." [26]

Preliterate people appear to have been remarkably free from disease and long-lived before their contact with Europeans.[27] There were evidently very few diseases in America and Australia before the coming of the Europeans. Africa, because of her contact with Asia and Europe through Egypt, had more diseases than America and Australia. Furthermore, Africa seems to have developed some diseases as hookworm, sleeping sickness, and black-water fever. Most diseases, however, appear to have originated in Asia, and it is thought that small-pox, plague, and cholera developed in India. From Asia most of these diseases spread into Europe and thence to the remainder of the world.

As civilization developed, people lived in more congested areas, engaged more in commerce, and widened their contacts. These conditions offered a fertile field for the spread of disease, and as people knew little of modern sanitation and control of disease, they paid heavily with their lives. As war breeds conditions upon which plagues thrive, we find disease reaping its greatest harvest during and immediately after wars. It is estimated that for some time during the sixth century Bubonic plague alone killed 5,000 daily. In the

[26] Carr-Saunders, A. M., "The Population Problem," Oxford University Press, 1922, pp. 157–58.
[27] Compare *Ibid.*, pp. 158–59.

eleventh century this malady spread over Europe taking off one-fourth of the population. "Black Death" is said to have caused the death of 25,000,000 Europeans in the fourteenth century. In the last decade of the last century. 6,000,000 natives of India died of plague. Measles is reported to have caused the death of 40,000 of the 150,000 inhabitants of the Fiji Islands in 1876. The World War was accompanied by influenza and we will never know how many people died from this disease. It was not by itself, however, for typhus spread over a considerable portion of the world, and the death rates from tuberculosis, pneumonia, and some other diseases increased noticeably. The death rate from tuberculosis in Germany in 1918 doubled the 1913 figures. She lost at least 75,000 from this disease during the war. Between 1918 and

DEATH RATES FROM THE THIRTEEN IMPORTANT CAUSES OF DEATH IN THE REGISTRATION AREA, 1900, 1910, 1920 [28]

Causes of Death	*Death Rate per 100,000 Population*		
	1900	*1910*	*1920*
All causes	1,755.0	1,496.2	1,306.0
Typhoid fever	35.9	23.5	7.8
Measles	12.5	12.3	8.8
Scarlet fever	10.2	11.6	4.6
Whooping cough	12.1	11.4	12.5
Diphtheria and croup	43.3	21.4	15.3
Influenza	22.9	14.4	71.0
Tuberculosis (all forms)	201.9	160.3	114.2
Cancer and other malignant tumors	63.0	76.2	83.4
Cerebral hemorrhage, apoplexy	67.5	73.8	80.9
Acute endocarditis and organic diseases of heart	123.1	150.4	149.7
Pneumonia (all forms)	180.5	147.7	137.3
Diarrhœa and enteritis (under 2 years)	108.8	100.8	44.0
Acute nephritis and Bright's disease	89.0	99.1	89.4

[28] Compare *Mortality Statistics*, 1920, pp. 17, 18.

1920 Russia had 6,000,000 registered cases of typhus and there were perhaps from three to five times as many as were reported. It is estimated that influenza caused the death of over 7,000,000 people in India in 1918, and 12,500,000 for the two years of 1918–1919; Russia lost 3,500,000 with this disease between 1917–1920; England, 83,750 in 1917; and the United States, 748,472 between 1917–1920. Willcox thinks at least 10,000,000 soldiers were killed during the World War, and that influenza took a much heavier toll of life.

The world's death rate is around 36,500,000 a year, or 100,000 a day. The United States has a daily sick list close to 4,000,000; a yearly death rate around 1,500,000, and a yearly suicide rate of over 12,000. Our birth registration area included twenty-eight states, or about 65 per cent of the population, in 1920 and during that year we had 1,142,558 deaths in this area. Our yearly number of deaths from heart diseases is about 145,000; tuberculosis, 130,000; pneumonia, 125,000; cancer, 125,000; Bright's disease 100,000.

The table on page 288 reveals a wide variation in the death rates for the several countries. In general, the countries with the lowest standard of living have the highest death rate. There has been a rapid decline in the death rate in most countries. For instance, the death rate of the United Kingdom decreased from 22.4 in 1870 to 14.9 in 1920; for the same period the death rate for Germany decreased from 27.2 to 17.4, France 24.4 to 19.1, Austria 31.9 to 22.2, Hungary 35.9 to 24.7, Spain 30.9 to 23.9, Italy 30.2 to 21.1. The death rate in the United States dropped from 17.6 per 1000 population in 1900 to 11.6 in 1921. In the United States, as in many other parts of the world, a strong fight is being waged against diseases. So far, we have had little success in conquering several diseases. Cancer and diseases of the heart, are chiefly "old age" diseases and are increasing. Measles, scarlet fever, whooping cough, diphtheria and croup are mainly diseases which attack children and the death rate from these has been

CRUDE DEATH RATE FROM SEVERAL COUNTRIES

Country	*Year*	*Deaths per 1000 Population*
New Zealand	1921	8.7
Australia	1921	9.9
Netherlands	1921	11.1
United States	1921	11.6
Sweden	1921	12.4
England and Wales	1920	12.4
Denmark	1920	12.9
Belgium	1920	13.5
Scotland	1921	13.6
Switzerland	1920	14.4
Ireland	1920	14.8
Germany	1920	15.1
Finland	1920	15.9
Norway	1919	17.1
France	1920	17.7
Italy	1919	19.0
Austria	1919	20.3
Japan	1919	22.8
Spain	1920	23.2
Chili	1920	30.8
Ceylon	1921	31.2

dropping rapidly. Smallpox, typhoid, diphtheria, yellow fever, and tetanus have been practically abolished. Ten per cent of the deaths in the Civil War were due to typhoid; eighty-six per cent in the Spanish-American War. In the World War we had but 114 cases. Had we had the same rate as during the Spanish-American War, we should have had at least 150,000 deaths from this cause. Smallpox, in the Middle Ages, like a cyclone playing across the plains of Kansas, swept over the European countries, leaving destruction in its wake; but since Jenner's vaccine, the death rate is negligible.[29] The

[29] For a discussion of the present status of vaccines, see Bossard, J. H. S., "Problems of Social Well-Being," Harper, 1927, pp. 190–91.

discovery of antitoxin has removed the dread of diphtheria; by destroying the mosquitoes, lice, and rat-fleas we have been enabled to control malaria, typhus, and Bubonic plague.

8. **Infant mortality.**—Many writers speak of the heavy infant mortality rate among preliterate tribes. This high rate was due to a number of causes such as exposure, lack of sanitation, poor and unsuitable foods—less often to diseases. Some tribes require the women to go away from the tribal tents to give birth to their children thus exposing mothers and babes to hard conditions. Some tribes would not permit the babes to have any food until they were four days old. Other tribes bathed each newborn child in cold water "often when it is 40° below zero." Of the California Indians the Jesuit missionary Baegert writes, "that many infants die among them is not surprising; on the contrary, it would be a great wonder if a great number remained alive. For when the poor child first sees the light of day, there is no other cradle provided for it but the hard soil, or the still harder shell of a turtle, in which the mother places it, without much covering and drags it about wherever she goes. And in order to be unencumbered and enabled to use her limbs with greater freedom while running in the fields, she will leave it sometimes in charge of some old woman, and thus deprive the poor creature for ten hours or more of its natural nourishment. As soon as the child is a few months old the mother places it, perfectly naked, astraddle on her shoulders, its legs hanging down on both sides in front, and it has consequently to learn how to ride before it can stand on its feet. In this guise the mother roams about all day, exposing her helpless charge to the hot rays of the sun and the chilly winds that sweep over the inhospitable country." [30]

Our present backward races have an exceedingly high in-

[30] "An Account of the Original Inhabitants of the California Peninsula," *Annual Report,* Bureau of Ethnology, Smithsonian Institute, 1863, p. 368.

fant mortality rate. Wattal [31] found that between 1902 and 1911 the infant mortality rate per 1000 births was 352 in the United Provinces, 332 in Burma, 320 in Bombay, and 306 in Punjab. For the same period Hungary had 207.6, Germany 186.6, France 132.4, England and Wales 127.3, Scotland, 116.1, Australia 87.5, Sweden 84.4, New Zealand 64.4. Part of the provinces of China have a death rate from 75 to 85 per cent. According to Ross [32] 87 per cent of the children born in Hong Kong in 1909 died within the first year of their life. The average infant mortality rate for Manila between 1903 and 1911 was 552 per 1000 births. For the period of 1906 to 1910 Chili led the white race, having a rate of 315 per 1000 births. For the same period European Russia had 243, Hungary 204, Austria 202. "Roughly speaking," writes East, "the yellow race has an average infant mortality of about 450, if one can place any reliance on the estimates of travelers and of Chinese students who are in attendance at the universities of this country. It is lowered by Japan's relatively fine showing, 157; but is raised by China, where over one-half of all infants die before they reach one year of age. If the brown race as a whole has about the same stamina and lives under conditions similar to those in India, its rate is slightly under 300; since recently published life-tables give India a rate of 290 for males and 285 for females during the period between 1901 and 1910. The infant mortality of the black race is difficult to estimate. In Jamaica, 1906 to 1910, it was 191; in the United States original registration states, 1901 to 1910, it was 241 for males and 206 for females; in Africa Herbert Lang, the distinguished traveller and naturalist, informs me that it is much higher, possibly even reaching a proportion similar to that of China. The average rate for negroes, therefore, cannot be under 300, and probably is

[31] Compare "The Population Problem in India" (Bombay), 1916, p. 20.

[32] Compare "The Changing Chinese," Century, 1912, p. 103.

around 350. The weighted average for the white race is close to 150." [33]

Speaking of the infant mortality rate Reuter says: "In Norway, Sweden, and Ireland, the rate is low: of each hundred babies born ten die before the end of the first year of life. In Prussia, Bavaria, and Russia, the rate is high: twenty-five babies out of each hundred born die before the end of the first year of life. In the United States the rate varies widely: In Massachusetts the number of infant deaths is about one-seventh of the number of births; in New Orleans, for the Negro population, about one-third of the babies born die before the end of a year of life. For the birth registration area, one of each twelve infants born dies before the age of one year. In 1919, 147.4 of each one thousand deaths in the registration area were of infants under one year, and 209.6 of each one thousand were of children under five years." [34]

Owing to the baby-saving campaign and new ways of treating diseases of children the death rate is falling rapidly in the more progressive countries.

THE TREND IN INFANT MORTALITY IN VARIOUS COUNTRIES [35]

Country	*1881–85*	*1906–10*	*Per Cent Decrease*
Hungary (91–95)	250	204	18.4
Austria (66–83)	255	202	20.4
Italy (91–95)	185	153	17.3
Belgium	156	141	9.6
France	167	126	24.6
England and Wales	139	117	15.8
Holland	181	114	31.5
Sweden	116	78	32.8
Norway	99	70	29.3
Australia	125	78	37.6
New Zealand	90	70	22.2

[33] "Mankind at the Crossroads," Scribner, 1923, pp. 244–45.
[34] "Population Problems," Lippincott, 1923, p. 155.
[35] East, E. M., "Mankind at the Crossroads," Scribner, 1923, p. 246.

In the United States between 1910 and 1919 the infant mortality rate dropped from 20.7 in 1910 to 14.7 in 1919. For children under five years of age it decreased from 34.4 in 1910 to 21.0 in 1919. "The first census taken by the Japanese in Formosa," according to Ross, "indicated that the Chinese there lose one-half their children before they are six months old. Some years ago regularly a third of the Russian babies and a fourth of the Bavarian babies failed to live as long as one year. On the other hand, in the best Scandinavian or American communities not more than one infant in twenty fails to survive the first year, and in New Zealand, where the baby-saving campaign has been pushed farther than anywhere else, there are cities which lose but one infant in 26!" [36]

9. **Famine.**—Death due to starvation was a minor factor among primitive peoples, yet the fear of starvation was a major factor in the control of population. Famines are comparatively modern, and perhaps have received more attention than their importance would justify. The world has experienced some 350 serious and an indefinite number of less serious famines since the beginning of Biblical times. Almost every year brings a minor famine to some part of the earth. India, Egypt, Palestine, China, Russia, Ireland, and Germany have suffered most from famines. India is reported to have had thirty-nine serious famines. For the two year period 1769–1770 about 10,000,000 people perished there. Twenty years later the "Skull Famine" followed during which time the living were unable to bury the dead. About 1,500,000 died during the famine of 1866. Ten years later 5,250,000 more perished. Germany is thought to have lost one-half of her population by famine in 1125. Ireland lost 1,600,000 because of the failure of the potato crop in 1845. Russia is reported to have lost 21,000,000 or 13.6 per cent of her population since 1920 due to famine. England has experienced three very serious famines. China sometimes loses

[36] "Principles of Sociology," Century, 1920, p. 30.

from 10,000,000 to 20,000,000 in one year because of famine. Most famines have been due to the uneconomic occupations of peoples in wars or to a change of weather which caused a crop not to mature. Formerly a year's supply of food had to be kept and if, for any reason, the supply ran short, famine resulted. Now, because of our superior economic and social organizations, we need only a few months' or weeks' supply.

10. **Other methods.**—Industrialism is a modern positive method for the control of population. With the development of industrialism, occupational diseases and deaths from accidents have gained in importance. The United States is considered the most reckless nation with human life, and when we kill, we kill by wholesale. After an examination of all the available data (1923), E. H. Downey concludes that "Industrial injuries in the United States annually cause at least 25,000 deaths, a like number of serious permanent disabilities, and some 2,000,000 temporary disabilities of more than three days' duration."[37] According to the incomplete statistics, the steam railroads killed 27,534 employees, and injured 1,527,529 for the decade ending January 1, 1922. For the same decade 23,987 employees were killed in our coal mines. Thus these two industries require at least 50,000 lives each decade. The National Safety Council placed the number of fatal automobile accidents for 1924 at 20,000. Thus our automobiles require a life every twenty-six minutes. Almost 6 per cent of the deaths in the registration area for 1922 were listed as accidental. Using that rate, Bossard estimates that the total number of accidental deaths for the entire country was 76,500 for 1922.[38]

There are many other things such as earthquakes, volcanoes, cyclones, tornadoes, floods, and animals that kill millions of people every year. It is estimated that prior to the great earthquake disaster in Japan (September, 1925) 485,000 peo-

[37] "Workmen's Compensation," Macmillan, 1924, p. 1.
[38] Compare "Problems of Social Well-Being," Harper, 1927, p. 393.

ple had been killed by earthquakes in fifty years, and 1,109,000 between 1531 and 1923. The earthquake in Japan, September 1, 1923, caused the death of more than 200,000 people. According to statistics collected by the British government for India for 1918, 22,600 persons died from snake bites, tigers killed 1162, leopards 469, wolves 294, bears 118, elephants 60, hyenas 35.

CHAPTER XVII

THE CONTROL OF POPULATION BY PREVENTIVE METHODS

Some preliterate peoples are reported as not knowing any connection between copulation and reproduction.[1] Very early, however, most tribes made this important discovery and consciously or unconsciously evolved certain crude customs, practices, and beliefs which tended to limit their fertility. To what extent small families among preliterate and historical peoples were and are due to a restricted fecundity, reduced by the following practices, cannot be stated.

1. **Pre-puberty coition.**—Copulation before puberty appears to have been common among the American Indians, Eskimos, and the tribes of Africa, India, Australia, and New Zealand. Nansen, speaking of the Eskimos of Greenland says: "Often indeed he marries before there is any chance of union being produced."[2] Among the Port Barrow Eskimos, according to Murdoch, "promiscuous sexual intercourse between married and unmarried people, or even among children, appears to be looked upon merely as a matter for amusement."[3] Of the Indians of the Northwest, Gibbs writes: "Cohabitation of unmarried females among their own people brings no disgrace if unaccompanied by child birth. . . . This commences

[1] In his recent book, "The Father in Primitive Psychology," Horton, 1927, Malinowski points out that even now the Trobriand Islanders have no idea of any relationship between coitus and reproduction. To their minds the male is entirely unnecessary in the reproduction of the young.

[2] "The First Crossing of Greenland" (London), 1890, p. 320.

[3] "Ethnological Results of the Port-Barrow Expedition," *Ninth Annual Report,* Bureau of Ethnology, Smithsonian Institute, 1884, p. 419.

at a very early age, perhaps ten or twelve years."[4] Speaking of the Columbian Indians, Bancroft says: "Unmarried women have not the slightest idea of chastity, and freely bestow their favors in return for a kindness, or for a very small consideration in property paid to themselves or parents."[5] Powers thinks "there is scarcely an attribute known as virtue or chastity in either sex before marriage" among the California Indians."[6] Writing of conditions in Africa, Johnston says: "As regards the little girls, over nearly the whole of British Central Africa, chastity before puberty is an unknown condition. Before a girl is to become a woman it is a matter of absolute indifference what she does, and scarcely any girl remains a virgin after about five years of age."[7] Weeks says that among the Bangala "above the age of five years it would be impossible to find a girl who was a virgin."[8] "If," writes Willoughby, "there is ever a time when Bantu boys and girls are not familiar with sexual subjects, it must be in the years when they have not yet become familiar with anything. Little effort is made to shield children from sexual contaminations; but, on the contrary, it adds spice to the elders' amusement when little voices try to sing these fearful songs, and small children ape their parents' vices. Nothing seems to matter till puberty is approached; and then there is a sudden attempt to look after the girls."[9]

"The Aos," writes Hutton, "are notorious for the unchastity of their women. . . . From a tender age girls are free to do as they like before marriage, and are thus with difficulty

[4] "Tribes of Western Washington and Northwest Oregon," *U. S. Geog. and Geol. Survey,* Vol. I, 1877, p. 199.

[5] "The Native Races of the Pacific States of North America" (London), 1875, Vol. I, p. 242.

[6] "The Tribes of California," *U. S. Geog. and Geol. Survey,* Vol. III, 1877, p. 157.

[7] "British Central Africa" (London), 1897, p. 409, note.

[8] "The Bengala of the Upper Congo," *Jour. of the Anthropological Institute,* Vol. XXXIX, 1909, p. 442.

[9] "Race Problems in New Africa," Oxford University Press, 1923, p. 127.

prevented from doing so afterwards. The unmarried girls sleep in small houses, built for the purpose, in twos or threes, and the unmarried men sleep with them."[10] Only adult marriage is in vogue among the Ao Nagas, according to Smith, "but, prior to wedlock the girls are allowed great freedom. It is said that Naga brides who are entitled to wear the 'orange blossom of virginity' on the wedding day are very rare. The girls sleep by twos or threes in separate houses or in the houses of widows, where they are visited nightly by their lovers."[11] Girls among the Angami Nagas consider short hair, the symbol of virginity, to be a disgrace and are very anxious to become entitled to wear it long.[12]

Among many preliterate peoples trial and child marriages are customary, and with these are associated pre-puberty coition. Both of these customs prevent intrigues and liaisons but have the same biological effects as any other pre-puberty copulation. Playfair says of the Garos, "On the occasion of certain festivals it is an unwritten law that young girls and men may sleep together after the entertainment is over, and the partnership of one night is expected to precede a life-long union. It is not absolutely necessary that they should thereafter live as man and wife, and no obloquy is incurred by the girl on account of her lapse from the path of virtue, unless she is found later to be an expectant mother."[13] In regard to the people of Burma, Webb writes: "Among many of the tribes there is great moral laxity prior to marriage. Thus among the Siyin and Sokte tribes of the Chins, female virtue is not expected, provided an unmarried girl takes the precautions to prevent motherhood before marriage. Boys and girls sleep together without hindrance, and a young man

[10] "The Angami Nagas," Macmillan (London), 1921, p. 374.

[11] Smith, W. C., "The Ao Naga Tribe of Assam," copyright 1925 by The Macmillan Company (London), p. 57. Reprinted by permission.

[12] Compare Westermarck, E., "The Origin and Development of Moral Ideas," Macmillan (London), 1908, Vol. II, p. 423.

[13] "The Garos" (London), 1909, p. 68.

openly cohabits with his mistress in the house of her parents. Similarly among the Kachins, young people are allowed to consort as they please before marriage though the marriage prohibitions are usually observed even in premarital intercourse. Special bachelors' huts are placed at the disposal of any couple who wish to try the experiment of living with each other. The experiments are continued indefinitely on both sides until a suitable match is found, and then marriage ensues. It is claimed that unchastity after marriage does not exist, owing to the freedom of experiment before marriage."[14]

Child marriages are reported to be common among many tribes in almost all parts of the world. Undoubtedly it has long been a widespread custom and millions of child marriages have taken place. "It often happened," writes Best, "that a girl would have intercourse with a youth before she arrived at puberty. At times marriage took place and was consummated at this early age."[15] "It would appear," says Hartland, "that sexual intercourse before puberty is either recognized by a formal marriage or tolerated as the gratification of a natural instinct among a great variety of people in all quarters of the globe."[16] India apparently had no child marriages in the Vedic Age, but in 1901, according to Carr-Saunders, "243,500 girls were married under the age of five, 2,030,000 between the ages of five and ten, and 6,585,000 between the ages of ten and fifteen."[17]

While the exact effect of early coition upon fecundity is not known, it is believed to be detrimental to the health and to reduce fecundity. "The Hindoos, including Mohammedans," says Sumner, "practice child marriage and cling to it, in spite of the efforts of the English to dissuade them from it, and in spite of the opinion of their own most enlightened

[14] *Census of India*, 1911, Vol. IX, *Burma*, Part 1, Report, p. 148.
[15] "The Peopling of New Zealand," *Man*, Vol. XIV, 1914, p. 32.
[16] "Primitive Paternity," Nutt (London), 1909, Vol. 1, p. 272.
[17] "The Population Problem," Oxford University Press, 1922, p. 253.

men that it is a harmful custom."[18] Again he says: "The custom of child marriage has now spread to the lowest classes, and in the lowlands of the Ganges cohabitation follows at once upon child marriage, with very evil results on the physique of the population."[19] Carr-Saunders says it is known "that early intercourse is injurious to the general health, and it is not difficult to understand in a general way how, if this is so, the reproductive functions would be adversely affected."[20] Wattal quotes the Punjab Census Report which says that, "it has been shown that the states which practice early marriage on an extensive scale have generally a smaller proportion of females at the age period 12 to 15. Inquiries into a large number of cases show that, when the marriage of young people is consummated at an early age, a fairly large number of wives die of phthisis or some other disease of the respiratory organs or from some ovarian complication within ten years of the consummation of marriage."[21] "It is also known," adds Carr-Saunders, "that when of two races both living a similar kind of life under similar conditions, one practises early marriage and the other does not, as for example, the Hindus and Mohammedans in India, fertility is higher among the latter than among the former."[22]

2. **Initiation ceremonies.**—Most preliterate tribes have certain initiatory customs which the boys and girls have to pass through at puberty. Before this ceremony is performed the boys and girls of many tribes have a questionable status in the tribes, but after the initiation they are recognized as full-fledged members and receive all the rights and benefits of the particular tribe. Male and female circumcision is often the most important part of these ceremonies. Among some tribes, especially the Australians, the genital organs are considerably

[18] "Folkways," Ginn, 1906, p. 383.
[19] *Ibid.*, p. 385.
[20] "The Population Problem," Oxford University Press, 1922, p. 104.
[21] "The Population Problem in India" (Bombay), 1916, p. 23.
[22] *Op. cit.*, p. 104.

mutilated, and there is a probability that this has an injurious effect, reducing the fecundity and perhaps in more extreme cases causing complete sterility. Some believe that the ceremonies were performed with the definite purpose of reducing fecundity or producing sterility. Semon says that "in some tribes we find it a custom that every man submits to this operation after the birth of his second or third child." [23] According to Webster the presence of circumcision "in the puberty rites of most primitive peoples as the necessary preliminary to marriage, suggests that the practice was originally designed to facilitate the reproductive act." [24] Webster thinks that the initiation ceremonies were intended "to prepare the youth for the performance of the marriage function, and thus, indirectly, for that participation in the life of the tribe which is the privilege only of married men, circumcision naturally becomes the seal and sign of this admission into the tribal life." [25] Authorities are not agreed that the mutilation of the genital organs in any of these ceremonies reduced the reproductive power. Carr-Saunders thinks there is "no reason to believe that this mutilation has any effect upon fecundity except possibly among the Australians." [26]

Among a number of tribes there is a general sexual indulgence with the girl when she is initiated. Among some tribes the old men have priority rights during the initiation of the girl; while with others the girl is subject to all the men who may get hold of her. Wilshire reports that after initiation the girls are sexually "at the mercy of all who may get hold of them." [27] Oldfield tells us there is a sexual initiation ceremony before a female is considered fit for marriage among the West Australian tribes, and "in it all the males of the tribe

[23] "In the Australian Bush" (London), 1899, p. 234.
[24] "Primitive Secret Societies," Macmillan, 1908, p. 37.
[25] *Ibid.*, p. 37.
[26] "The Population Problem," Oxford University Press, 1922, p. 138.
[27] "The Aborigines of Central Australia," p. 30.

partake."[28] Speaking in general of chastity, Malinowski says: "Before marriage the girl has to submit to a general sexual intercourse, and after it the woman becomes on many occasions the property of another man."[29] Just how this unrestricted, compulsory, and excessive sexual indulgence affects the fecundity of the initiated girls is not known. Since prostitutes and charity girls are often sterile, it is quite probable that excessive copulation greatly reduces the fecundity; hence the unrestrained coition among the girls initiated probably reduces their fecund powers. Malinowski[30] points out that among the Trobriand Islanders pre-marital coitus is expected, no birth control methods are known, yet the women rarely bear children before they are married. Popenoe[31] suggests that the reason so many prostitutes are sterile is due primarily to the effects of spermatoxins.

3. **Delayed marriages.**—Among preliterate peoples marriage is all but universal.[32] It usually takes place around puberty, consequently the woman is married during her entire fecund period. There are many exceptions, however, to this general practice. Among some tribes children are betrothed in infancy or even before birth, and often marriage is consummated before puberty. Among other tribes some time elapses between puberty and marriage. According to Crantz[33] some Eskimo girls do not marry before they are twenty. The same delay is customary among certain Indian tribes of South America.

Among some preliterate groups marriage is by purchase

[28] "On the Aborigines of Australia," *Trans. Ethnological Society*, Vol. III, 1865, p. 251.

[29] "The Family Among the Australian Aborigines" (London), 1913, p. 105.

[30] Compare "The Father in Primitive Psychology," Horton, 1927, Chapter VI and *passim*.

[31] Compare "Problems of Human Reproduction," Williams and Wilkins, 1926, pp. 100–103.

[32] Compare Westermarck, E., "The History of Human Marriage" (London), 1901, Vol. I, Chap. X.

[33] Compare "The History of Greenland" (London), 1767, p. 158.

and often it takes the boy considerable time to accumulate the purchase price. The Jakun expect the husband "to provide a hut, cooking pots, and other necessary articles such as will suffice to enable house-keeping to be started with reasonable comfort." [34] It has long been a custom for a Dyak when he wishes to marry to show himself a hero by displaying a number of scalps from an enemy tribe. Just "as soon as a [Fuegian] youth is able to maintain a wife by his exertions in fishing and bird catching, he obtains the consent of her relations, and does some piece of work, such as helping to make a canoe, or preparing sealskins." [35] Johnston tells us that the "Masai warrior is not allowed by the elders of his tribe to marry until he has reached about thirty years of age and has accumulated a fair amount of property or else so distinguished himself by his bravery as to merit an early retirement." [36] Among the tribes of British Guiana a man "must prove that he is a man and can do a man's work" before he is permitted to marry. To fulfill one of the requirements "he clears a space in the forest to be planted with cassaba, and brings in as much game and fish as possible, to show that he is able to support himself and others." [37]

Among many tribes marriage is by service and like Jacob of old, the prospective son-in-law must render service to his prospective father-in-law before he can claim his bride, often giving his services for nothing. Carver tells us that among the Nandowensis Indians "when one of their young men has fixed upon a young woman he approves of, he discovers his passion to her parents, who give him an invitation to come and live with them in their tent. He assiduously accepts the offer, and by so doing engages to reside in it for a whole year, in the

[34] Skeat, W. W. and Blagden, C. O., "Pagan Tribes of the Malay Peninsula" (London), 1906, Vol. II, p. 70.

[35] King, P. P., and Fitzroy, R., "Narrative of the Voyages of the Adventure and the Beagle" (London), 1839, Vol. II, p. 182.

[36] "The Uganda Protectorate" (London), 1902, Vol. II, p. 822.

[37] Thurn, Sir E., "Among the Savages of Guiana" (London), 1883, p. 221.

character of a married servant. During this time he hunts, and brings all the game he kills to the family, by which means the father has an opportunity of seeing whether he is able to provide for the support of his daughter and the children that might be the consequence of their union.'' [38]

Polygyny is customary among most preliterate peoples and as a result many of the young men are unable to obtain wives. ''There was a constant complaint,'' writes Weeks, ''amongst the young and vigorous men of the middle and lower orders that it was almost impossible for them to procure wives. Thus we found a small number of men possessing nearly all the women in a town, having from four or five up to twenty-five or thirty each, and a large number of young men who could not secure wives.'' [39]

As a result of these various customs there is a considerable delay in marriage among many tribes of preliterate peoples. In many tribes the average age for marriage is between twenty-five and thirty for males and around twenty for females. There is a eugenic effect, however, because the strongest, most active, and wealthiest marry earlier, have more wives, consequently more children. Eventually all marry with the exception of the weak-minded and very inefficient. ''The wretched, the invalids, the weak-minded, only,'' according to Junod, ''are deprived of the legal marriage which for the black man is and remains the one object in life.'' [40]

When we examine the historical peoples we find that marriage is gradually being delayed; celibates, especially religious celibates, are more numerous and added restrictions are being placed on marriage. Carr-Saunders says there is ''a very large amount of evidence which shows that, at least in the society typical of most European countries from the tenth century onwards, marriage was, except among the privileged

[38] ''Travels Through the Interior Parts of North America'' (London), 1871, p. 373.
[39] ''Among Congo Cannibals,'' Lippincott, 1913, p. 135.
[40] ''Life of a South African Tribe,'' Stechert (London), 1912, p. 125.

classes, always somewhat, and often very long, postponed both for men and women, though more for the former than the latter. This postponement was brought about by the pressure of social conditions, customs, and laws . . . generally speaking, in the country there was a limited number of households and that, until death made vacancies, there was no house for those wishing to marry, who in consequence had to wait, and that in the towns guild restrictions bound apprentices for a large number of years during which they might not marry, and that at many times in many places the poor were prohibited from marrying.''[41] He tells us that apart ''from religious celibacy, there was no voluntary celibacy such as we find at the present day. But these obstacles in the case of the dependent class were serious, and marriage was long postponed by men in this class, though postponed for a shorter time by women than by men.''[42] ''Country life,'' according to Marshall, ''was as elsewhere rigid in its habits; young people found it difficult to establish themselves till some married pair had passed from the scene and made a vacancy in their own parish; . . . consequently, whenever a plague or famine thinned the population, there were always many waiting to be married, who filled the vacant places.''[43] A law in Bavaria in 1616 ''forbade the marriage of servants, day labourers, and others without property.''[44] Denmark and Würtemberg prohibited those receiving parish allowances, beggars, vagabonds, and thieves from marrying.

Any extended delay in marriage limits the possible number of children. Young women are more fecund than older women still in the reproductive period. Dunlop thinks a ''year's delay when the woman is aged from 20 to 25 averages

[41] ''The Population Problem,'' Oxford University Press, 1922, pp. 264–65.

[42] *Ibid.*, p. 265.

[43] ''The Principles of Economics,'' Macmillan (London), 1907, p. 186.

[44] Rubin, M., ''Population and Birthrate,'' *Jour. of the Royal Statistical Society,* Vol. LXIII, 1900, p. 597.

0.45 of a child, 0.37 when she is aged from 25 to 30, 0.32 when she is aged from 30 to 35, 0.29 when she is aged from 35 to 40, and 0.19 when she is aged from 40 to 45."[45] He thinks it would take a delay of forty years on the part of a man to reduce a family by one child.

4. **The prolongation of the period of lactation.**—The nursing period is almost always prolonged among preliterate peoples. It is usually extended to two or three years and often much longer. Among some Australian tribes this period may extend until the child is four, five, or even six years of age. Eyre tells us that among the Central Australians the "infants are not often weaned until between two and three years old."[46] According to Meyer, the aborigines of Encounter Bay nurse their children "a considerable time, sometimes to the age of five or six years."[47] Nansen says that "Greenland mothers are very slow to wean their children. They often give suck until the child is three or four, and I have even heard of cases in which children of ten or over continued to take the breast."[48] Sproat says that among the Ahts of Vancouver Island he has seen "a boy of four following his mother for her milk."[49] Among the Chickmics, according to Bancroft,[50] a child might suck until it is eight years of age. Man states that the Andaman Islanders "never wean their babies so long as they are able to suckle them."[51]

Although important, the effect of lactation on fecundity is not definitely known. It seems to be agreed that among ani-

[45] "The Fertility of Marriage in Scotland," *Jour. of Royal Statis. Society*, Vol. LXXVI, 1914, p. 266.

[46] "Journals of Expeditions of Discovery into Central Australia," 1845, Vol. II, p. 250.

[47] "Manners and Customs of the Aborigines of Encounter Bay" (Adelaide), 1879, p. 187.

[48] "Eskimo Life" (London), 1893, p. 151.

[49] "Scenes and Studies of Savage Life" (London), 1868, p. 94.

[50] Compare "The Native Races of the Pacific States of North America" (London), 1875, Vol. I, p. 633.

[51] "On the Original Inhabitants of the Andaman Islands," *Jour. of the Anthropological Institute*, Vol. XII, 1883, p. 81.

mals an "early weaning is conducive to a more frequent recurrence of oestrous and an increased number of litters." [52] Carr-Saunders says: "There is a considerable amount of evidence to the effect that the continuance of lactation to some extent inhibits heat in animals and menstruation in women." [53]

5. **Tabooed coition.**—There is abundant evidence that the period of lactation is extended over a number of years and that copulation is absolutely prohibited during this period. Describing the life of the North American Indians, Heriot states that the women nurse their children "for three or four years, during which period they cohabit not with their husbands." [54] "They," says Weld, "suckle the few children they have for several years, during which time, at least among many of the tribes, they avoid all connections with their husbands." [55] D'Orbigny writes that among the Moxos and Chiquitos the mother "invariably suckles her children for three years or more, during which time she has no relations whatever with her husband." [56]

While a few preliterate tribes require the parents to cohabit within ten days or a month after child-birth, many believe that cohabitation before the child can walk or talk will cause it to be sickly or possibly die. Weeks says that among the Bangala "during the sucking period the husband has no sexual relations with his wife, or the child will become thin and weak and probably die." [57] Gray states that among the Chinese "a husband is not expected to cohabit with his wife after she has conceived, nor after the child is born, during the whole period that it is being nourished at the mother's breast. Any violation of this rule is supposed not only to

[52] Marshall, F. H. A., "Physiology of Reproduction" (London), 1910, p. 400.
[53] "The Population Problem," Oxford University Press, 1922, p. 102.
[54] "Travels Through the Canadas" (London), 1807, p. 339.
[55] "Travels Through North America" (London), 1899, p. 373.
[56] "L'Homme Américain" (Paris), 1837, Vol. I, p. 47.
[57] "The Bangala of the Upper Congo," *Journal of the Anthropological Institute*, Vol. XXXIX, 1909, p. 418.

cause the child to become sickly but to provoke the displeasure of the ancestors and to bring misfortune upon all members of the family. Wealthy Chinese are generally very careful in the practice of such abstention.'' [58]

There are other periods such as before crops are planted, preparation for war, or for a hunt, when copulation is prohibited. ''For four days,'' writes Frazer, ''before they committed the seed to the earth the Pipiles of Central America kept apart from their wives 'in order that on the night before planting they might indulge their passions to the fullest extent; certain persons are even said to have been appointed to perform the sexual act at the very moment when the first seeds were deposited in the ground.' The use of their wives at that time was indeed enjoined upon the people by the priests as a religious duty, in default of which it was not lawful to sow the seed.'' [59] Crawley says that ''in the Kei Islands men before going to war may have no intercourse with women, and those who remain behind must practice the same continence. In New Caledonia, to abstain from carnal connection with women is considered a meritorious act, and is strictly observed on all solemn occasions, especially when going to war. Strict chastity is observed by Malays in a stockade, else the bullets of the garrison will lose their power. . . . After killing his first man, the young Natchez warrior was required to abstain for six months from all sexual intercourse, and was prohibited from tasting meat. A seven-days' taboo amongst the Malays, when fishing, is the scrupulous observance of chastity. During the pilgrimage to Mecca which every Mussulman must perform once in his life, he has to abstain from all sexual intercourse.'' [60] ''If,'' writes Brown, speaking of the inhabitants of New Britain, ''a man was wounded and was under treatment, no man who had recently slept with a woman, nor

[58] ''China'' (London), 1878, Vol. I, p. 185.
[59] ''The Golden Bough,'' Macmillan (London), 1911, Vol. II; ''The Magic Art,'' p. 98.
[60] ''The Mystic Rose,'' Macmillan (London), 1902, pp. 188–89.

any woman who had recently slept with a man, could visit him. He would certainly die if this were done. One day at least must elapse before any one who has had sexual intercourse with another can come into the presence of a wounded man. This restriction, however, does not apply in cases of ordinary sickness, but they apply in full force in the case of a woman in child-birth, and the child will surely die if it is violated. Sexual intercourse is also forbidden whilst the Dukduk, Iniat, and some Malira ceremonies are being carried on; also whilst some new song-dances are being learned. If a man has slept with his wife he is sure to sing wrongly. A man also is forbidden to sleep with his wife when he is going shark-fishing.'' [61] Mills tells us that a law of the Lhota Nagas requires a woman ''to remain chaste while her husband was away on a raid.'' [62]

Undoubtedly the prohibition of copulation during the planting, hunting, and belligerent periods was usually for short duration and did not affect population to any considerable degree. Sometimes, however, the period was for a year or more, and under such conditions evidently reduced the increase. Abstinence during the period of lactation, on the other hand, was without doubt an important factor in the control of population. Many of these prohibitions would permit the birth of only one child every four, five, six, or ten years.

6. **Celibacy.**—There is very little celibacy among preliterate peoples. They see no reason for one's remaining unmarried and generally hasten to enter into the married state as soon after puberty as customs will permit. Among the Kutchins, writes Richardson, ''poor men, whose abilities as hunters are small, and who have been unable to accumulate herds, remain bachelors.'' [63] Among the Sawngtung Karens, according to Webb, there ''are to be found many grey-haired bachelors and

[61] ''Melanesians and Polynesians,'' Macmillan (London), 1910, p. 274.
[62] ''The Lhota Nagas,'' Macmillan (London), 1922, p. 108.
[63] ''Arctic Searching Expeditions'' (London), 1851, Vol. I, p. 383.

many spinsters whom custom has prevented from marrying."[64]

There were some religious celibates in Egypt, Chaldea, Rome, India, and Tibet, such as the Persian Sun Priestesses, and the Vestal Virgins of Rome. Celibacy began to increase, however, and laws were enacted in Greece and Rome to stop it. In Athens celibacy was regarded as a serious offense against the household gods and magistrates were enjoined to punish those remaining unmarried. In spite of laws an increasing number of Romans refused to enter the married state. "Concubinage and prostitution," says Goodsell, "grew by leaps and bounds as men sought to satisfy their passions without assuming the cares of married life."[65]

With the rise and spread of Buddhism and Christianity celibacy took on a religious nature, increased rapidly, and undoubtedly had an effect on population from both the quantitative and qualitative standpoints. Buddhism forbade marriage to the sacerdotal caste and encouraged all who wished to attain wisdom to remain celibates. The attitude of Jesus and Paul toward celibacy is well known. Tertullian expresses the common attitude of the Church Fathers when he asks "For why should we long to bear children, whom, when we have them, we desire to send before us . . . ourselves also longer to be removed from this most wicked world. . . Therefore whether marriage be for the sake of the flesh, or of the world, or of having descendants, not one of these necessities belongeth to the servants of God."[66] As to how effective the teaching of such doctrines was may be judged on the basis that "there were at one time in a single diocese in Egypt 20,000 men and 10,000 women celibates."[67] Neither Buddhism nor Christianity retained its power long in this respect and after

[64] *Census of India*, 1911, Vol. IX, p. 148.
[65] "A History of the Family as a Social and Educational Institution," Macmillan, 1915, p. 137.
[66] "First Book to His Wife" (London), 1848, p. 414.
[67] Carr-Saunders, A. M., "The Population Problem," Oxford University Press, 1922, p. 264.

a time many of the religious leaders began to oppose celibacy and to advocate large families. Even in the American colonies bachelors were taxed, suspected of being immoral, and required to have guardians!

7. **The prevention of fertilization.**—Many preliterate tribes had certain practices and ceremonies which they believed would prevent fertilization. Among the Sinaugolo certain women engaged in magical practices to render conception impossible. Seligman writes: "There is generally a woman in the village or one of the surrounding villages who is supposed to be gifted with a power inherited from her mother of causing women to become 'hageabani,' literally incapable of having more children. Suppose that a woman considers that she has had enough children, she will by stealth seize an opportunity of consulting such a woman and will pay for services. The woman gifted with the power sits down behind and as close as possible to her patient, over whose abdomen she makes passes while muttering incomprehensible charms. At the same time herbs or roots are burnt, the smoke of which the patient inhales."[68] "The women, I believe," writes Brown, speaking of the inhabitants of New Britain, "eat some leaves to prevent conception, but none, so far as I know, to increase it."[69]

The statements of many writers show that many tribes know no contraceptive methods. Others, however, such as those in New Zealand and German New Guinea, apparently know and employ contraceptive devices. It is certain that contraceptive measures have long been used in Africa and among some tribes of American Indians. H. A. Junod in his "Life of a South Africa Tribe" gives an interesting account of the methods employed to prevent fertilization. The girls of the Shawnee Indians "drink the juice of a certain herb which

[68] "The Sinaugolo," *Journal of the Anthropological Institute*, Vol. XXXII, 1902, p. 303.

[69] "Melanesians and Polynesians," Macmillan (London), 1910, p. 38.

prevents conception and often renders them barren through life.'' [70] Many other Indian tribes believe sterility can be artifically induced. The practices followed, however, seem to show that most of them are magical beliefs rather than realities. ''In Africa,'' writes Carr-Saunders, ''we again meet with similar magical practices, and we must similarly account them to be without effect. In this area, however, we also meet with, for the first time, practices of quite a different nature. Many races in different parts of the Continent are acquainted with means of preventing fertilization. . . . Generally speaking this practice is employed under two different circumstances; measures may be taken to prevent conception by those who are not married and who do not wish to be married for some time; they may also be used by married people under certain circumstances, as, for example, by parents in the Thonga tribe who may have intercourse when the child begins to crawl, but who must avoid conception until the child is weaned. Again, young married couples in the neighborhood of Port Herald live in a special house so long as they are unable to build a house for themselves, and during this time no children must be conceived.'' [71]

Without doubt the ancient Greeks, Romans, Jews, Arabs, German tribes, Franks, Chinese, and Hindus knew something of preventing fertilization and about the use of contraceptives. The methods known seem to have been used chiefly for special reasons and not to have influenced population to any great extent. The religions of most of these people sanctioned large families. Modern contraceptive knowledge dates from about the time of Malthus, and ''so far as the eighteenth century . . . [or previous time] . . . is concerned, it may be taken as a fact that in the main the limit of fertility of marriage was set by nature alone.'' [72]

[70] Ashe, T., ''Travels in America'' (London), 1808, p. 272.
[71] ''The Population Problem,'' Oxford University Press, 1922, p. 177.
[72] Rubin, M., ''Population and Birth-rate,'' *Jour. of the Royal Statis. Soc.*, Vol. LXIII, 1900, p. 614.

CHAPTER XVIII

THE MODERN BIRTH CONTROL MOVEMENT

In its modern application birth control means the conscious responsible control of conception. It does not, therefore, mean interference with life after conception has taken place; but consists solely in the use of intelligent and scientific hygienic knowledge to determine the proper time for this important function to occur, and to limit its possibilities to those times.

The history of the modern birth control movement.—In the last chapter it was shown that to a limited extent contraceptive practices were used long before the time of Malthus, whom destiny forced unwillingly to father the birth control movement. Quite accidentally and unknowingly, Malthus, despite his repudiation, gave the impetus to the birth control agitation, which recognizes his parenthood by calling itself "Neo-Malthusianism." Being a keen diagnostician, he saw with clarity the evils of an excessive and uncontrolled birth rate, but as a therapeutist he was a clergyman. Without completely mastering his subject, he startled the world, proposed an impracticable remedy for what he considered a serious world-wide sickness, and left it for later men and women to propose and attempt to institute more practical remedies.

Perhaps James Mill should be considered the first of the Neo-Malthusians and a more logical pioneer of birth control than Malthus. As early as 1818 he admitted that the question had been "miserably evaded by all those who meddled with the subject." In 1821 his "Elements of Political Economy" appeared in which he stated that "the grand practical prob-

lem, therefore, is to find the means of limiting the number of births.'' A year later Francis Place published his ''Illustrations and Proofs of the Principle of Population.'' He had been reformed by marriage and opposed Malthus' idea of postponement of marriage to control population. Richard Carlile, ''who was more apt to be found in jail than at home,'' read Place's treatise and started to write against it, but was ''converted'' and became one of its strong advocates, writing ''Every Woman's Book,'' which described methods of preventing conception. In 1830, the Englishman Robert Owen, published his ''Moral Physiology'' in New York City. Public opinion, however, hastened his return to England. As a result of Owen's book, Dr. Charles Knowlton published his ''Fruits of Philosophy'' in 1833. This was the first contribution to birth control literature from a medical point of view. For selling this book in England, Charles Bradlaugh and Annie Besant were given a heavy sentence, but were released by a higher court because of a ''technical'' error. The book had been published some forty years before and sold lazily, but this trial caused it to be very much in demand. Mrs. Besant now wrote the ''Law of Population.'' In 1878 Edward Truelove was arrested for selling Owen's ''Moral Physiology,'' tried, and fined 50 pounds and sentenced to serve four months. These trials caused the Malthusian League, which was organized in 1861, to awake from its lethargy and to become very active. It has since spread into most of the more progressive nations. Today the League claims as its members some of the most outstanding thinkers of the world.

Prior to 1873 when the well-meaning but blundering Anthony Comstock had the obscenity law passed, the United States was free for the circulation of birth control literature. This federal law amended in 1878 prohibited ''every article or thing designed or intended for the prevention of conception or procuring of abortion'' from going through the mails. The penalty is $5000 or five years imprisonment, or both. Twenty-four

states and Porto Rico have definite obscenity laws; twenty-four states, the District of Columbia, Alaska, and Hawaii have more liberal laws; twenty-two states prohibit the sale of drugs and instruments, eleven states make it a crime to possess contraceptive knowledge; fourteen make it a crime to tell where the knowledge may be had; four states have search and seizure laws; two states—New Mexico and North Carolina are without obscenity laws. In 1881 New York gave physicians a right to give contraceptive information as a health measure, but in 1919 Dr. Mary Molton made an investigation and found that none of the physicians availed themselves of this opportunity. They did not know the law existed!

Margaret Sanger, the leader of a group of birth control enthusiasts in the United States, finally succeeded in inducing two senators to introduce a bill in Congress in 1924 to remove the "preventing conception" from the obscenity statutes. Despite the law and despite the fact that editor Carl Tresca was sentenced to serve one year in Atlanta prison in January, 1925, for running a birth control advertisement, and Carl Rave was arrested in California, November 28, 1927, for offering for sale Margaret Sanger's pamphlet on "Family Limitation," birth control knowledge is rather freely circulated and applied among the upper and middle classes of our population. Contraceptive knowledge is furnished in Australia, Holland, and New Zealand, and circulates freely in the other European countries except France, where it has become illegal since the World War.

The declining birth rate.—Beginning in England but becoming noticeable in France before the Revolution, the declining birth rate has spread to all the progressive countries. The following table shows its tendency:

THE BIRTH RATE TREND IN EUROPE [1]

(Per thousand of Population Annually)

Years	*England and Wales*	*Scotland*	*Ireland*	*France*	*Germany*	*Austria*	*Hungary*	*Italy*	*Norway*	*Sweden*	*Russia*	*Spain*	*Belgium*	*Holland*
1871–76	35.5	35.0	27.4	25.5	38.9	39.3	42.8	36.9	30.2	30.7	50.3	....	32.6	36.1
1876–80	35.4	34.8	25.7	25.3	39.2	38.7	44.1	37.0	31.7	30.3	48.4	....	32.0	36.4
1881–85	33.5	33.3	24.0	24.7	37.0	38.1	44.6	37.8	31.2	29.4	49.2	36.7	30.9	34.8
1886–90	31.4	31.4	22.8	23.1	36.5	37.6	43.7	37.3	30.8	28.8	48.7	36.2	29.4	33.6
1891–95	30.5	30.5	22.9	22.4	36.3	37.3	42.0	35.9	30.3	27.4	48.2	35.8	29.1	32.9
1896–1900	29.2	30.0	23.1	22.0	36.0	37.0	39.7	33.9	30.3	26.9	49.4	34.6	29.0	32.2
1901–05	28.2	29.2	23.3	21.5	34.3	35.7	37.5	32.7	28.6	26.1	47.7	35.2	27.7	31.6
1906–10	26.3	27.4	23.3	19.9	31.7	33.7	36.7	32.7	26.4	25.4	45.5[2]	33.6	24.7	29.6
1911–15	23.6	25.4	22.7	18.5	27.5[2]	30.0[2]	34.0[2]	31.4	25.2	23.1	.....	30.8	....	27.7

Regardless of whether a country started with a high or with a low birth rate for the period from 1871 to 1876, there has been a noticeable drop. France started with the lowest rate and Russia with the highest; in this forty-four year period France's rate dropped 7.0 while Russia's rate dropped at least 5.0.

Between 1880 and 1900 the legitimate births per 1000 wives, 15 to 45 years of age, had a percentage decrease as follows: France 19.9, Belgium 19.8, England 17.8, Scotland 12.5, Denmark 9.7, Holland 9.2, Germany 8.4, Sweden 8.0, Norway 3.5, Italy 2.5, and Spain 0.4. Taking a longer period of time, that is, comparing the period of 1871–1880 with the period of 1901–1910, the percentage decrease is thought to have been as follows: New Zealand 34, Australia 27, England and the United States 23 each, Belgium, France, and Scotland 19 each, Finland, Germany, and Holland 16 each, Sweden 15, Ireland, Norway, and Switzerland 12 each, Austria and Italy 11 each, Denmark 9, Servia 4.

French families are said to have averaged 7 children each under Francis I, 5 under Louis IV, 4 in 1789, 3 in 1890, and 2 in 1914. France had an average of 3.3 children per family in 1865 and 1.66 in 1920. The European average is 4.2.

[1] East, E. M., "Mankind at the Crossroads," Scribner, 1923, p. 267.
[2] Approximated.

Owing to the fact that the United States has never had a complete registration, we do not know how much the birth rate has declined. Several attempts have been made to estimate the drop.

East[3] largely quoting from Willcox gives the following table:

RATIO OF CHILDREN UNDER 5 YEARS OF AGE PER 1000 WOMEN AGED 16 TO 44 YEARS IN THE UNITED STATES

Date	*Ratio*	*Date*	*Ratio*
1800	976	1880	635
1820	928	1900	541
1840	835	1920	467
1860	714		

Crum studied twenty-two genealogical records and found that the average number of children per wife was 7.37 before 1700, but only 2.77 for the decade ending 1880. Twenty-four per cent of the wives had ten or more children before 1700, but by 1870 to 1879 only 0.37 had that number.[4]

Kiaer,[5] by elaborate comparisons and estimates, based on the records for Massachusetts, gives the birth rates per 1000 population as follows:

Year	*Average Rate*	*Year*	*Averate Rate*
1870	390	1900	312
1880	375	1910	296
1890	320		

[3] Compare "Mankind at the Crossroads," Scribner, 1923, p. 269.

[4] Compare "The Decadence of the Native American Stock; a Statistical Study of Genealogical Records," *Amer. Stat. Assn. Publ.*, Vol. 14, September, 1914, pp. 215–22.

[5] Compare "An Attempt at a Statistical Determination of the Birth Rate in the United States," *American Statistical Association Publication*, Vol. 16, pp. 442–57.

The differential birth rate.—It is well for us to endeavor to locate where the declining birth rate is most apparent. If all groups reproduced at the same rate, many of our social problems would be lightened, but the differential birth rate is continually becoming more apparent and thus making our problems more complicated.

1. *The birth rate varies with the amount of wealth.* The lower the economic and social status the heavier the birth rate. Heron's [6] studies of London show that the birth rate declined much more rapidly in the wealthy sections than in the poor. Bertillon [7] studied certain cities of Europe and found wide variation of the birth rate in the various quarters.

ANNUAL BIRTHS PER 1000 WOMEN, AGED 15 TO 50 YEARS, IN DIFFERENT ECONOMIC STRATA

Classification	*Paris*	*Berlin*	*Vienna*	*London*
Very poor quarters	108	157	200	147
Poor quarters	95	129	164	140
Comfortable quarters	72	114	155	107
Very comfortable quarters	65	96	153	107
Rich quarters	53	63	107	87
Very rich quarters	34	47	71	63
Average	80	102	153	109

BIRTHS PER 1000 MARRIED WOMEN, AGED 15 TO 50 YEARS

Classification	*Paris*	*Berlin*
Very poor quarters	142	214
Poor quarters	128	198
Comfortable quarters	109	192
Very comfortable quarters	96	172
Rich quarters	94	145
Very rich quarters	65	121

[6] Compare "Drapers Company Research Memoirs," *Studies in National Deterioration*, No. 1, 1906.

[7] Compare Newsholme, A., "Vital Statistics," Macmillan, Third Edition, pp. 75–76.

A study of Montclair, New Jersey, shows that the births per 1000 population varied from 29 in the fourth ward to 8 in the third. The fourth ward is the poorest and the third the wealthiest.

2. *The birth rate varies with occupations.* A study in France, based on the 1906 census made according to the number of children in families where marriage had lasted 25 years or more showed:

303 children per 100 families among clerks
306 children per 100 families among their employers
409 children per 100 families among laborers
480 children per 100 families among fishermen and sailors of the merchant marine

Another classification of those who had been married 25 years and were therefore 60 to 70 years of age showed the number of children per 100 families as follows:

Liberal profession	303
Commerce	347
Agriculture	370
Other industries	385
Lace weavers	489
Spinners	540

An investigation of the influence of salary on the number of children gave the following results:[8]

CHILDREN PER 100 FAMILIES

Annual salary in francs...	500 at most	501 to 1000	1001 to 1500	1501 to 2500	2501 to 4000	4001 to 6000	6,001 to 10,000	More than 10,000	*Average*
MARRIAGE LASTING 15 TO 25 YEARS									
Clerks	277	241	259	245	223	231	239	238	237
Laborers	329	321	293	280	254	234	...	...	307
MARRIAGES LASTING MORE THAN 25 YEARS									
Clerks	330	301	305	280	264	264	261	286	285
Laborers	348	363	346	329	305	240	...	...	385

[8] Compare "The Consequences of War and the Birth Rate in France," *Scientific Monthly*, Vol. 13, November, 1921, pp. 416–17.

STERILE MARRIAGES OF THOSE LASTING MORE THAN 25 YEARS

Clerks	..	95	86	99	113	101	111	109	101
Laborers	..	70	74	91	98	100	...	...	78

PROPORTIONAL NUMBER OF FAMILIES HAVING HAD MORE THAN SEVEN CHILDREN

Clerks	..	56	53	41	33	26	23	52	44
Laborers	..	95	86	75	55	50	..	..	88

BIRTH RATE ACCORDING TO OCCUPATION, ENGLAND AND WALES, 1911 [9]

Occupations	*Birth Rate per 1000 Married Men under 55 Years of Age*
Teaching profession	95
Lawyers	100
Doctors	103
Agricultural laborers	161
Dock laborers	231
Coal miners	232

Tredgold examined 43 families of the parasitic class and found an average of 7.4 children per couple; and 91 respectable couples of the laboring class and found an average of 3.7 children per couple.

3. *The birth rate varies with education.* Several studies show a close correlation between fertility and educational status. While over sixty-seven per cent of the women over fifteen years of age in the general population of the United States marry, only about one-half of the women who graduate from college marry. It appears, however, that the average number of children per college woman married differs little from that of non-college women in similar social positions.

[9] Compare Bushee, F. A., "Principles of Sociology," Holt, 1923, p. 282.

NUMBER OF CHILDREN PER 100 MARRIED GRADUATES [10]

Wellesley	126.4	(1875–1901)
Vassar	164.3	(1867–1901)
Bryn Mawr	172.4	(1870–1901)
Mount Holyoke	182.3	(1890–1899)

The average number of children born per graduate of Middlebury College decreased from 5.6 in 1805–1809 to 1.8 in 1875–1879; in Wesleyan University from 4.5 in 1830–1839 to 2.6 in 1860–1869; in New York University from 4.0 in 1840–1849 to 2.5 in 1870–1874; and Mount Holyoke College from 2.77 in 1842–1849 to 1.91 in 1890–1892. A comparison between Yale and Vassar graduates of the class of 1867 to 1886 inclusive showed that the average number of children per married graduate was 2.02 for men and 1.95 for women. A recent study in England found that the average number of children born by college women is 1.95, while for non-college women it is 2.15. This difference is thought to be due to the late age of marriage of college women. That is, education does not reduce the fecundity of women nor change their desires to bear children. In his study of 1000 women whose names appear in "Who's Who in America," Cope found that the average number of children per married woman is 1.12.[11]

Dr. Cattell, in his study of "American Men of Science," found that these men left less than two children surviving per family. Popenoe found that the families of Methodist ministers averaged 3.12 surviving children. Studies in England show that the birth rate per 1000 married men under 55 years of age was 95 for teachers, 101 for clergymen, and 232 for coal miners.

If society is composed of four strata, according to their innate intelligence, as McDougall would have us believe, the professional men and business executives are failing to breed

[10] Compare Holmes, S. J., "The Trend of the Race," Harcourt, 1921, pp. 136–39.

[11] Compare "The Women of 'Who's Who,'" *Social Forces*, Vol. VII, December, 1928, pp. 212–23.

brains for future generations. If a Harvard graduate fathers three-fourths of a son and the Vassar graduate mothers one-half of a daughter, where are we going? Alarmists believe that our colleges and universities are sterilizing us both physically and mentally. On the other hand, women of eminence argue that through their work they are making as great contribution to society as do mothers who have no interests other than bearing large families. In this connection it may be said that our present lack of knowledge concerning laws of heredity and the flexibility of our social groupings render the assumption of the first named group somewhat doubtful. Then too, the marriage rate among college graduates appears to be increasing today. It has always been higher among co-educational schools than among non-co-educational schools and as our colleges and universities become more co-educational, the marriage rate among this group will doubtless increase.

BIRTH RATES, URBAN AND RURAL [12]

DENMARK

Periods	*Copenhagen*	*Other Towns*	*Country*
1860–1869	21.1	23.7	23.2
1870–1879	21.9	24.4	24.0
1880–1880	22.9	25.7	24.3
1890–1900	17.4	22.5	24.4

4. *The birth rate varies with urbanization.* It would appear that the birth rate begins to drop first in the cities and later spreads to the rural districts. In some of the older cities like London, the decrease seems to be less rapid for the cities. This is perhaps due to the fact that birth rates drop very rapidly for a time, then reach a place where the decrease is very slow. Some of the cities are apparently in this slowing-up stage,

[12] Compare "The Declining Birth Rate: Its Causes and Effects," A Report of the National Birth Rate Commission (London), 1916, p. 33.

while the rural districts have not yet reached it. It takes longer to reach this stage in the rural districts because children are not so great a burden there. There are more bachelors and spinsters in the cities. It is easier for these groups to succeed in cities than in rural districts, because a family is a necessity on a farm.

GERMANY

	1879–1882	*1894–1897*
Berlin	23.8	16.9
Great towns other than Berlin	26.7	23.5
Towns of 20,000 to 100,000	26.8	25.7
Towns of less than 20,000	27.8	25.9
County districts	28.8	29.0

FRANCE

	1894–1896	*1904–1906*
Districts with over 70 per cent agriculturists	31.2	30.2
55 to 70 per cent	28.2	26.6
45 to 55 per cent	26.9	24.9
30 to 45 per cedt	26.5	23.8
10 to 30 per cent	27.7	23.7
Less than 10 per cent	24.2	21.5

Studies for the United States show that there were 603 children under 5 years of age for every 1000 women of child-bearing age in the rural districts and only 382 in the urban districts for 1910. In 1920 the ratios were 581 for rural and 392 for urban districts. A study by the Immigration Commissioner found that, in general, 100 native women in the rural districts would produce 34 children, while 100 native women in the urban districts would bear 24 children. Were it not for the immigrants, with their large families, settling in our cities, the urban districts would show a more rapid decline in the birth rate.

5. *The birth rate varies with religious beliefs.* There seems to be some connection between the size of families and religious beliefs. In general, we can say the more liberal a group is in its religious beliefs, the smaller the family. With the exception of France, the birth rate in Catholic countries tends to be higher than in Protestant countries. The more loyal a country is to the Catholic church the larger the family. The birth rate of Catholics living in Protestant countries tends to be higher for them than for the Protestant element. An investigation made in Prussia for 1895 and 1900 shows an average of 5 children for Catholic families, 4 for Protestant and 3.7 for Jewish. Between 1800 and 1910 the birth rate in Berlin remained fairly constant at 36 per cent for Catholics, but dropped from 44 per cent to 21 per cent among Protestants. An investigation of the landed gentry of England showed an average of 6.6 children per family for Catholics and 3.74 for Protestants. Since 1880 the birth rate has decreased about 23 per cent for Protestant England, but only 1.6 per cent for Catholic Ireland.

The Jews have been adverse to barrenness and often to small families, yet their birth rate is usually a little lower than their Gentile neighbors and varies according to the country in which they dwell. The birth rate for Jews was found to be 16.2 in Bavaria, 36 in Russia, 38 in Siberia, and 39.6 in Bulgaria.

6. *The birth rate varies with nativity.* According to Kuczynski [13] the birth rate per 1000 women between the ages of 14 and 49 decreased among the native population from 63.74 in 1883–1887 to 62.68 in 1893–1897. For the same period the foreign born increased from 124.58 to 139.42.

J. A. Hill [14] studied the census reports for Minnesota, Ohio,

[13] "The Fecundity of the Native and Foreign-Born Population in Massachusetts," *Quart. Jour. of Econ.*, Vol. 16, February, 1902, pp. 141–86.

[14] Compare "Comparative Fecundity of Women of Native and Foreign Parentage in the United States," *Amer. Stat. Assn. Publ.*, Vol. 13, December, 1913, pp. 583–604.

and Rhode Island, and found the average number of children born to women under 45 years of age, married from 10 to 20 years to be as follows:

	Per Cent Bearing No Children	*Average Number of Children*
White—native parentage	13.1	2.7
White—foreign parentage	5.7	4.4
First generation (born abroad)	5.3	4.7
Second generation (born U. S.)	6.3	3.9
Negro	20.5	3.1

It was found that the average number of children per married woman was for English 3.4, German 4.3, Italians 4.9, Poles 6.2. Foreigners have fewer two- and three-children families than native Americans and more four- to fourteen-children families. Foreign-born mothers are said to produce 30 per cent more children than native mothers. An investigation for the city of Los Angeles showed that the birth rate was 54 per 1000, but the rate for Mexicans was 152. In 1922 the number of births per 1000 married women of child-bearing age among the white population of California was 125.5, among the Japanese, 317.2, among the Chinese 621.1.

Miss Hewes'[15] study of the students of Mount Holyoke College shows that the average number of children per parents' generation was 4.59 for native born and 6.26 for foreign born. For the students' families it was 3.05 for native and 4.51 for foreign. There was a drop for both groups but the foreign families remained higher. Perhaps Groves and Ogburn are correct when they state that difference in fertility is due to other than biological reasons.[16] Recent investigations show

[15] Compare "Note on the Racial and Educational Factors in a Declining Birth Rate," *Amer. Jour. of Sociology*, Vol. 29, September, 1923, pp. 178–187.

[16] Compare "American Marriage and Family Relationships," Holt, 1928, pp. 269–70.

that according to the 1920 census the average number of children born for white mothers was 3.0 and for foreign-born mothers 4.0. The average number of children living for native white mothers was 2.7 and for foreign-born mothers 3.4. The first and second generations show a marked difference in the number of children: the first generation Poles average 6.2; French Canadians, 5.8; Scotch, 3.8; English, 3.7 and for the second generation Poles, 5.1; French Canadians, 4.9; Scotch, 2.9; English, 2.9. The birth rate per 1000 white females in 1920 was as follows: Italy, 160.0; Canada, 47.3; United States, 42.8; Ireland, 41.5; Denmark, Norway and Sweden, 39.4; England, Scotland and Wales, 38.2. Of 23,000 births in eight eastern cities, the infant mortality was as follows: Portuguese, 200.3; French Canadians, 171.3; Polish, 157.2; American Negro, 154.4; native white, 93.8; Jewish, 53.5.[17]

The survival rates.—Lothrop Stoddard and Madison Grant have set the world agog on "Nordic Superiority," and as a result many people are suffering from the apparent delusion that the white race is going to be swamped by the colored races. Remembering this, it is necessary for us to make some comparisons. East[18] gives the following table explaining:

Race	*Population, Millions*	*Annual Increase per 1000*	*Annual Increase, Millions*	*Number of Years to double*
White, European origin	650	12.0	7.80	58
White, non-European	60	8.0	.48	87
Brown	420	2.5	1.05	278
Yellow	510	3.0	1.53	232
Black	110	5.0	.55	139
Total	1,750		11.41	

[17] Compare Popenoe, Paul, "The Fecundity of Immigrant Groups," *Eugenics*, Vol. II, January, 1929, pp. 23–26.

[18] Compare "Mankind at the Crossroads," Scribner, 1923, p. 115.

"They are the rates obtained when white increase is put at the minimum for which there is any evidence, and colored increase at the maximum."

East thinks that "Over two-thirds of the total yearly increase of the world population is white. To 8 million additional whites, there are only 4 million additional non-whites. Before 1950, therefore, unless some radical and relatively permanent overturn of world affairs occurs, the white race will have a true majority instead of a plurality. This will be true notwithstanding the fact that white birth-rates are falling in many countries, because death-rates have also receded. Its present momentum will carry it 30 years, even if the birth-rate drops twice as fast as it is dropping at present." He thinks that the "figures for rates of increase should read 13.0 or more for the white race and 2.0 or less for the colored races, when both sets are averaged. In this case, the annual increase of white peoples would be 9.23 millions and the annual increase of colored peoples 2.08 millions." [19]

In the accompanying table I wish to make a brief comparison of four countries; comparing the survival rate per thousand of population of the Japanese with the Australian Commonwealth, and of British India with England and Wales:

	Birth Rate		*Death Rate*		*Survival Rate*	
Year	*Japan*	*Australia*	*Japan*	*Australia*	*Japan*	*Australia*
1916	23	27	22	11	11	16
1917	32	26	21	9½	11	16½
1918	32	25	27	10	5	15
Average..	29	26	23⅓	10⅙	9	15⅝

[19] "Mankind at the Crossroads," Scribner, 1923, pp. 115–16.

Year	Birth Rate		Death Rate		Survival Rate	
	British India	*England and Wales*	*British India*	*England and Wales*	*British India*	*England and Wales*
1910	40	25	33	13	7	12
1911	39	24	32	14½	7	9½
1912	39	24	30	13	9	11
1913	39	24	29	14	10	10
1914	40	24	30	14	10	10
1915	38	22	30	16	8	6
1916	36	21	29	14	7	7
1917	38	18	33	14	5	4
1918	35	18	62	18	−27	0
1919	30	18½	36	13½	− 6	5
Average..	37.4	21.8	34.4	14.4	3	7.4

It is estimated that the Negro increased 343 per cent during sixty years of slavery and 136 per cent during sixty years of freedom. Negroes composed one-fifth of our population in 1870 and less than one-tenth in 1920. Comparative figures show that the Negro is increasing little more than one-half, if indeed one-half, as fast as the whites.

PERCENTAGE INCREASE OF NEGROES AND WHITES

Decade	*Rate of Decadial Negro*	*Increase, White*	*Negro Rate Compared with White (100)*
1860–1870	21.4	27.5	78
1870–1880	22.0	26.4	83
1880–1890	17.6	26.7	66
1890–1900	13.8	21.2	65
1900–1910	11.2	22.3	50
1910–1920	6.5	16.0	41

Willcox [20] made a study of the Negro birth and death rates for the years 1915–1919 inclusive, and found there were 121 deaths to 100 births among the Negroes in cities and 72 deaths to 100 births among them in rural districts. In the Northern cities there were 116 deaths to every 100 births, 134 for the rural districts for the North, 127 for the cities in the South, and 66 for the rural districts of the South. Thus the only place where the Negro is keeping up his number is in the rural districts of the South. As he leaves these sections and migrates North or into cities, he is slowly committing racial suicide. At the same time the birth rate among Negroes is falling rapidly. The Negro birth rate in the registration area for the decade ending 1920 decreased 17 per cent while the white birth rate decreased only 2.5 per cent. For the same period the death rate decreased for Negroes 23.9 per cent and for whites 11.7 per cent.

The colored race in Africa is increasing very slowly, if at all. East thinks that China has increased very slowly during the past century and is perhaps stationary today. Thus, there seems to be no cause for fearing a disproportionate increase of the colored races; consequently alarmists will need to look elsewhere for excitement.

Some people fear that the Teutonic and Roman groups of population are giving way to the hordes of Slavs. From the following table one would judge this to be true. This, however, fails to consider the heavy immigration of Teutons and Romans, and that the industrial age reached the Slavs at a much later date than the other groups. The fact is the birth rate is falling rapidly among the Slavs and what has taken place is perhaps not true today. Out of 1000 inhabitants of the Teutonic, Roman, and Slav groups there were in the years named the following proportions: [21]

[20] Compare "Eugenics in Race and State," paper 17, Williams and Wilkins, 1923, pp. 166–74.

[21] Compare Carr-Saunders, A. M., "The Population Problem," Oxford University Press, 1922, p. 321.

	1801	*1850*	*1905*
Teutonic.....	375	369	273
Roman.....	355	321	251
Slav.....	268	310	375

EXCESS OF BIRTHS OVER DEATHS IN VARIOUS COUNTRIES [22]

(Per thousand of Population. Averages for five-year periods)

Years	*Australia*	*Austria*	*Belgium*	*Bulgaria*	*Denmark*	*France*	*Germany*	*Hungary*	*Italy*	*Norway*	*Roumania*	*Russia*	*Spain*	*Sweden*	*United Kingdom*
1890–94	19.7	9.0	8.7	9.7	11.4	0.1	12.5	9.0	10.5	13.0	9.1	12.1	3.8	10.6	10.7
1895–99	15.4	11.4	11.1	15.9	13.7	1.3	14.8	11.4	11.1	14.8	12.9	16.6	5.7	11.2	11.1
1900–04	14.6	12.1	10.7	17.7	14.0	1.4	14.5	11.9	10.4	14.4	14.0	17.7	8.3	10.7	11.1
1905–09	15.7	10.8	9.0	19.0	14.3	0.6	14.0	10.9	10.9	12.5	14.2	16.1	9.2	11.0	11.1
1910–14	17.1	10.5	7.6	18.6	13.5	0.4	12.5	12.8	12.8	12.2	17.4	....	8.9	9.8	10.0

"Any one who sees white stagnation in this table," writes East, "needs a new pair of spectacles. The Stork may have become less active, but the inertia of Death has more than made up the difference." [23] Doubtless, if the late ex-President Roosevelt had made a comparison of this kind before he started on his anti-race suicide campaign, he would not have told us that the population of Australia was dying out. It is quite evident that the birth rate alone or the death rate alone does not tell us very much; it is the survival rate or rate of increase that furnishes the acid test. For example, in 1913 and 1914 the survival rate for India and England and Wales was the same. India had a birth rate of 39 for 1913 and 40 for 1914. For the same years the birth rate for England and Wales was 24. India had a death rate of 29 and 30, while the rate for England and Wales was 14. During these two years British India's heavy birth and death rates, above the

[22] East, E. M., "Mankind at the Crossroads," Scribner, 1923, p. 271.
[23] "Mankind at the Crossroads," Scribner, 1923, p. 271.

English rates, cost her 7,520,000 useless births and unnecessary deaths.

These facts do not tell the whole story and it is well for us to consider the survival rates among the social classes. Herein is one of the most serious problems we have to face. It is generally understood that the heaviest birth rate is among the poor, paupers, mental defectives, and degenerates. Many people, however, do not consider this to be important because they believe that the death rate is so high among these groups that it compensates for their heavy birth rate. A study of the British census for 1911 gives the following results:

Social Classes	*Births per 1000 Married Males under 55 Years*	*Deaths of Infants under 12 Months per 1000 Born*
Unskilled workmen	213	152.5
Intermediate class	158	152.5
Skilled workmen	153	112.7
Intermediate class	132	106.4
Upper and middle class	119	76.4
Medical practitioners	103	39
Solicitors	100	41
Clergymen (Church of England)	101	48
Earthenware workmen	181	172
Dock laborers	231	172

According to Wolf, out of 1000 babies born in Erfurt, Germany, 505 died among the working class, 175 among the middle class, and 89 among the rich. Pearson found the average number of children for pathological families was 6.2, and 5.3 for normal families. Ellis studied 100 normal families and 100 feebleminded families and found the feebleminded families to be one-third larger than normal families. Baber and Ross studied 100 dependent couples of native stock, taken at random, and 2500 couples of native stock each of which had a son, daughter, nephew, or niece in college. They found that

the 100 dependent couples had 649 children, while the independent couples averaged 280 children per 100 couples. In other words the dependents were producing children two and one-third times as fast as the independent couples. March studied 89,400 births among French civil employees and found that the infant death rate increased from 114 per thousand among first born to 277 among twelfth or later born. Emma Duke studied 1491 children in Johnstown, Pennsylvania, and found the death rate for the first and second children to be 138; for third and fourth 143; for fifth and sixth 177; for seventh and eighth 182; and for ninth or later 201. Alica Hamilton studied 1600 children and found that where there were four children or less in the family the infant mortality rate was 118 per thousand; six, 267; seven, 280; eight, 291; nine or more 303. Studies by the Children's Bureau found the infant mortality to be 84 per thousand where fathers earned $25 or more per week, and 255.7 where fathers earned less than $10 per week.

These studies are significant in showing that the families with the poorest heredity and economic standing have the largest number of children and the heaviest infant mortality. In other words, the lower the standard of living in either a family or a nation, the greater the waste of human life. From the evidence obtainable, it appears that the survival rate among the countries with a low standard of living is not very excessive, but among the lower families in the more progressive countries, where an effort is made to save all babies, the survival rate is greater than among the highest class.

CHAPTER XIX

THE MODERN BIRTH CONTROL MOVEMENT (Continued)

Why has the birth rate declined?—Different explanations have been offered for the drop in the birth rate. Some have argued that civilization has caused a decrease in fecundity, but if the arguments presented in a former chapter are true, civilization has caused an increase rather than a decrease in fecundity. It is inconceivable that education within fifty or a hundred odd years could cause such a drop in the birth rate as Spencer apparently thought. Others have tried to explain the falling birth rate as due to celibacy and late marriage. It should be remembered that there are very few men who are really celibates. Social customs tend to discourage early matrimony today, especially among the professional class. While the professional class tend to delay marriage longer than other classes and have fewer children, the marriage rates in all highly civilized countries have remained remarkably constant. The rates, however, differ among the different nations. In 1914 the marriage rate per 1000 population was in France 5.1, Ireland 5.4, Finland and Sweden 5.8, Norway and Spain 6.5, Austria and Holland 6.7, Denmark 6.9, Italy 7.1, Hungary 7.2, Scotland 7.4, Germany 7.7, Japan (1917) 7.99, England and Wales 8.0, and Rumania 8.5.

The proportion of married women has remained about the same and the age of marriage has remained about the same.

"A rough weighted average of the decrease for these nations [France, German Empire, and the Scandinavian countries]," says East, "is .9 of a year for males and 1.3 years for females between the years 1870 and 1910. In England, in

Australia and New Zealand, and in the United States, on the contrary, there has been a slight advance in age in both sexes, although on the average it appears to be less than a year."[2]

PROPORTION OF MARRIED WOMEN TO ALL WOMEN 15 TO 45 YEARS[1]

Country	*1880–1881*	*1890–1891*	*1900–1901*
England and Wales	514	494	492
Ireland	395	364	330
Sweden	444	454	444
Germany	519	515	528
Austria	520	504	518
France	549	545	577
Italy	552	...	561

Some writers think part of the drop in the birth rate is due to the refusal of some groups to bear any children. "In our own day," writes Inge, "the reluctance of rich and self-indulgent women to bear children is undoubtedly a factor in the infertility of the leisured class."[3] Undoubtedly the wealthier and professional classes limit the number of offspring, but it is not probable that any large number of them would refuse to bear any children. Doubtless many of those who do not have any children are unable to do so. "Much capital," asserts East, "has been made of the woman who prefers a lap-dog to a baby, the woman who will not forego luxury for the sake of children, the woman who fears the loss of beauty. Every sin in the decalogue, and several new ones invented for the special purpose, have been laid at the door of childless women and of women who see fit to limit the number of their offspring. I was interested at one time in trying to find out how much of this criticism of childless women was sincere in its nature—without regard as to whether the premises were

[1] Holmes, S. J., "The Trend of the Race," Harcourt, 1921, p. 148.
[2] East, E. M., "Mankind at the Crossroads," Scribner, 1923, p. 261.
[3] "The Future of the English Race," *The Edinburgh Review*, Vol. 229, April, 1919, p. 215.

correct—and how much of it was a subjective emotional reaction due to causes that will readily occur to any psychologists. Among 25 individuals who were very outspoken on the subject and whose histories were readily available, 7 were bachelors, 5 were celibate clergymen, 3 were childless married women, 3 were persons with 1 or 2 children, 2 had 3 children, 2 had 4 children, 1 had 5 children, and 2 had 7 children. The result of this brief inquiry shows that a great part of this criticism is an insincere attack at an obviously vulnerable point. Personally, I believe that it is about as baseless as a political cartoon. People who do not desire children form a negligible fraction of the population. The parental instinct is too ancient to be changed easily, and it is seldom satisfied with the advent of a single child. The poor little lady riding around in solitary grandeur would rarely hesitate a moment if she could exchange her jewels and her limousine for a child of her own to fondle; and it is a shame to cause her further heartaches by holding her childlessness up to ridicule. Her exuberant solicitude for her lap-dog, so much decried by her accusers, is clear evidence in her favor, if only they would be honest and admit it."[4]

No one denies that there is a small percentage of sterility and that as a consequence some who desire children are unable to have them. Perhaps, divorce, also, affects the birth rate a little. On the other hand, there is but one satisfactory explanation for the declining birth rate: the spread of contraceptive knowledge and the willingness of people to use contraceptive methods. East thinks between 85 and 90 per cent of the decline is due to artificial limitation. But why are people willing to use contraceptive methods? There are doubtless a number of reasons, but for our purpose they can be included under three headings.

1. *Economic.* Undoubtedly the economic is the chief reason for limiting offspring and perhaps underlies many of the

[4] East, E. M., *op. cit.*, p. 264.

other reasons commonly offered. With our compulsory school laws, child labor laws, advance in the cost of living, higher culture standards, and change in social ideas, children are a liability rather than an asset. A large per cent of our population now live in urban centers where children are more expensive and more worry than in rural districts. Many women have entered in industry and cannot forego the time for pregnancy, child birth, and the rearing of children. This tendency is revealed when a comparison is made between the wives of miners and those of textile employees. The wives of many textile employees work while miners' wives usually do not; consequently the birth rate is much higher among people engaged in mining. Owing to the changing and unstable conditions, many couples prefer to have but few children for fear they may not be able to secure employment and support a large family ten or fifteen years hence. Many parents are showing greater concern for their children and prefer to have a few and give them an opportunity in the world rather than have a large number of children and not be able to offer them many advantages. Their philosophy is, quality is better than quantity.

2. *Social.* Women have grown weary of the monotony and toil connected with cook stoves, wash-tubs, and other domestic duties; yet women are home-builders and will not as a rule forsake domesticity if drudgery can be avoided. They are today demanding, socially and professionally, more self-realization, and as a result, an increasing number are entering high schools, colleges, universities, and other institutions of learning in quest of an education. The more time and energy a woman puts into an education, the more likely she is to continue with her individual career. While a few educated women forego marriage and motherhood, many do not. There is a tendency, however, for those who marry to keep the family small enough to enable the mother to devote part of her time, at least, to activities outside the home. Young profes-

sional people are in a difficult position today. The young wife, and often the young husband, have been accustomed to many luxuries during single life; consequently after marriage a contest between luxuries and babies ensues. The situation is further complicated by the fact that certain luxuries are imperative to their social positions and their salaries are often too low for retaining these luxuries and the rearing of children.

3. *Physical.* Some women, especially the very timid, refrain from bearing children because pregnancy practically forces them to remain at home for several months. Others have a fearful dread of the pangs of childbirth, and many husbands are showing greater concern for their wives and do not wish them to suffer. Sometimes women refrain from bearing children because they do not believe they are strong enough to produce healthy children. Physicians are advising couples to have at least three years between childbirths if they wish to produce healthy children, and the mother to retain her vitality. Mother life seems to be about the cheapest life in the United States today; something like 15,000 mothers die annually from childbirth. The death rate in the United States from pregnancy and labor in 1920 was 19.1 per 100,000. Computed on women of child-bearing age, it accounted for 50.3 of all deaths of women of this age in 1900 and 67.7 in 1920. According to our progress in medicine this rate should have decreased as with many diseases. Women give birth to children under all kinds of conditions. Physicians find obstetrics poor pay, consequently midwives and quacks abound. Mothers-to-be should be sent to maternity hospitals. In good hospitals the rate is only about 15 per cent of what it is in the general population. The United States is a wealthy country and has made progress in many lines, yet we lead the civilized world in maternity mortality. Our rate is 6.5 per thousand living births, while for Italy, Norway, and Sweden it is less than 3, Hungary and Prussia less than 4, England and Japan a little over

4, Australia, France, and Scotland a little over 5, Belgium, Spain, and Switzerland less than 6.

The birth control controversy.—Birth control by the use of contraceptives has pushed itself into the foreground and is one of the live questions in the world today. Undoubtedly, there are two sides to the question, for birth control, like an automobile, can carry us in either direction. The advocates of birth control think that by the use of contraceptives poverty can be stamped out, and the feebleminded and other pathological stocks greatly reduced. The opponents see in it murder and national decline. Apparently no one knows where it may take us. Irving Fisher says: "There are three possibilities: (1) it may cause depopulation and ultimately bring about the extinction of the human race; (2) it may reduce the reproduction of the prudent and intelligent and the economically and socially ambitious, leaving the future race to be bred out of the imprudent, unintelligent and happy-go-lucky people, thus resulting in race degeneration; or (3) it may cut off the strain of the silly and selfish, the weak and inefficient who will dispense with children for the very good reason that they lack the physical stamina or the economic ability to support a large family." [5]

Each side of the birth control question has its enthusiastic advocates, who advance many kinds of arguments. Roughly, there are four principal arguments.

1. *Religious argument.* A number of people, many of whom really practice birth control themselves, are against the use of contraceptives because they do not understand the meaning of them. They apparently believe it is murder because they do not distinguish between the prevention of conception and the dangerous, injurious, and degrading practices of abortion and infanticide. The advocates of birth control point out that by the use of contraceptives the spermatozoön

[5] "Impending Problems of Eugenics," *Scientific Monthly*, Vol. 13, September, 1921, p. 223.

is prevented from reaching the ovum, and there is no human being until there is a fertilized ovum. In fact, one of the strongest arguments for the use of contraceptives is that it will stamp out abortion and infanticide.

Some people argue that the use of contraceptives is impure and degrading, but those who advocate the use of contraceptives point out that the interest in sex is too fundamental to be destroyed, and any attempt to put it out of consciousness really puts it in consciousness and causes it to be associated with loathesomeness and sexual perversion. Blocked emotions take many forms, causing some to engage in abnormal practices; others, to develop the sex complex and to oppose anything referring to sex. Secrecy, deprivation, and taboo seem to develop curiosity and impuremindedness, which are difficult to remove even by sane and open discussion. It is rather peculiar that anything referring to sex came to be regarded as obscene.

Some people oppose the use of contraceptives because they fear it may lead to immorality, promiscuity, and the spread of venereal diseases. Indeed there seems to be a danger here, but the advocates of the use of contraceptives think there is no real danger, and point out that immorality, venereal diseases, and the births of illegitimate children have decreased and more definite opposition to prostitution has developed in those countries where the knowledge of contraceptives is widespread. "Even our moralist," writes Dr. A. Knopf, "must acknowledge that many a girl married early to a man of her choice, enabled by understanding to limit the number of children, would be saved from what is called dishonor and in many instances from prostitution." [6]

Those people who oppose contraceptives do not have to use them. But many who possess this knowledge think they should have this information but that it should be denied other peo-

[6] "Birth Control and the World Crisis," *The Nation*, Vol. III, November 24, 1920, p. 589.

ple. They admit it has done them no harm, but feel that they should be self-appointed guardians of other people because other people are weaker than they are! They forget that self-appointed guardians are of no value and that virtue which has to be guarded ceases to be virtue. "Marriage is the most intimate and sacred of human relations," says Oldham, "and the bringing into the world and training of children the greatest of human responsibilities. How many children it is right to have and how, consistently with the highest spiritual ideal of marriage, the number may be limited to that which reason and conscience dictate, are among the most important questions that individual men and women have to decide."[7]

The Catholic church[8] appears to be the only one of our large religious bodies that universally opposes the use of contraceptives. It considers birth control as being essentially immoral, because it believes that birth control implies the limitation of the family by artificial prevention of conception. This is considered an unnatural perversion, "for it goes against the order intended by God, and defeats the immediate end of a natural human act." Because of its opposition to the use of contraceptives and the prevention of its nuns and priests (except in certain Slavic countries) from marrying, thereby forcing them to live the life of abstinence, and implying that they are peculiarly holy as a result of this "life of single blessedness," the Catholic church has been severely condemned. It, however, considers family limitation as perfectly ethical, and sometimes obligatory, "if the method used is self control by abstinence and continence."

The author's contact with members of the Catholic Church convinces him that many members of this church

[7] From "Christianity and the Race Problem," by J. H. Oldham. Published by George H. Doran Company, 1924, p. 200.

[8] Compare Conway, B. L., "The Church and Eugenics," *Catholic World*, November, 1928.

do not hold to this doctrine. The declining birth rate in Catholic countries would seem to show that members of this church use contraceptives almost as freely as do Protestants. France remains largely Catholic, yet she has the lowest birth rate of any country in the world. The Protestant churches and the Protestant clergy are divided on the subject of birth control. Numbered among the advocates are such outstanding men as Rabbi Wise, the late Dr. Frank Crane, and Dean Inge. "A new science," writes Rabbi Wise, "has arisen to command parents not only 'to honor thy son and daughter' but so to honor life in all its sanctity and divineness as to leave a child unborn,—if they be unfit for the office of parenthood." He thinks that the time will come when the state will not only visit its severest condemnation but even penalty upon couples, "not because a child has been born to them illegitimately in a legal or technical sense, but because in a very real and terrible sense they have been guilty of mothering and fathering a child into life which is not wholly viable—that is unendowed with complete opportunity for normal living." Wise thinks that although the duty of parents to their child is high, the "highest of all at times may be the duty of leaving children unborn. Race suicide is bad, but an unguided and unlimited philoprogenitiveness may be worse." [9]

2. *Political argument.* Political and militaristic leaders generally oppose birth control. The former desire more voters and the latter more soldiers. France's attitude for the last few years brings this out very clearly. It should be remembered that France "rocks in the cradle of extremes." Before the time of Malthus she considered herself over-populated. Collot, d'Herbois, and Carrier advocated the execution of from twelve to fifteen million Frenchmen to reduce the population. "Let the guillotine operate throughout the Republic"; wrote Guffroy, "five million inhabitants will be enough for France."

[9] Wise, S. S., "Child vs. Parent, copyright 1922 by The Macmillan Company, pp. 12–13. Reprinted by permission.

In 1852 Versailles offered large premiums to encourage infertility among the poor. But by 1913 the French government was almost completely in the hands of the militaristic group and it was advocating a cradle competition with Germany. On July 14, 1913, France passed a law to release from sixty to ninety francs to families for each child. On July 28, 1918 ten more francs were added. By 1921 this amount had increased to 180 francs with the state and municipalities bringing it up to 240 francs. In some places special bonuses were offered for each child in excess of two. Benazet introduced a bill in Parliament to guarantee each mother 500 francs for each of two children, 1000 francs for the third, and 2000 francs for the fourth. Turquan advocated granting a father as many votes as he had children. "Yet all are agreed," says W. H. Scheifley, "that France needs annually 1,500,000 births instead of 750,000, the pre-war average. Of her eleven million married couples, almost two million are childless, three million have but one child to a family, and more than two million have but two children. The remaining four million have three or more." [10]

Dr. Edward Toulouse recently fathered a theory to make the women of France bear more children. His theory is to force childless women of thirty to serve two years in military service, those with one child to serve one year, those with two children to serve six months, and to exempt women with three or more children. These women are to take the place of men who are drawn for non-combatant operations. He advocated a eugenic registry for all females so that people of like taints need not marry. The children of the poor are to be cared for by the state. Such a plan would doubtless lead to immorality, increase illegitimacy, and multiply the inferiors. To further promote an increase in the birth rate a national league of

[10] "Is France Dying?" *The North American Review*, Vol. 210, December, 1919, p. 766.

about 1,000,000 members has been organized. This league makes eight proposals:

(1) Decrease the tax in favor of large families and place an extra tax on bachelors and childless couples.

(2) Increase the inheritance tax on large fortunes. In case a family has four children there is to be no such tax.

(3) Grant the liberty to make a will. The present law calls for an equal division of property among children. As a result the peasants have only one or two children per family, thereby eliminating the necessity for dividing their meager holdings.

(4) Give bonuses and rewards for large families. Belgium has adopted this by districts, and gives bonuses ranging from 300 francs for the third child to 1000 francs for the tenth child.

(5) Provide cheaper housing facilities.

(6) Arrange special advantages for large families, such as reductions in railroad rates.

(7) Allow salary bonuses for fathers of large families. Industrial and commercial concerns are to pay higher wages to fathers of large families.

(8) Permit plural voting for fathers of large families. Fathers of four children are to have two votes.

This national alliance for the increase of population offered a grand prize of 50,000 francs for the best book exposing the perils of a falling birth rate. Several smaller prizes were offered for books of this kind. All use and knowledge of contraceptives are outlawed in France today. But such propaganda and laws are not likely to bring the desired results to individualistic France.

A competition in birth rate is fully as bad as a competition in armaments. Many nations have held that they have the right to expand and go to war to gain territory for their overflowing population, and then try to exterminate the conquered.

History shows that France is the most warlike nation in the world; yet there is one lesson she has not learned from her bloodshed. Her birth rate is high enough, but her death rate is too high to have a rapidly increasing population. Furthermore, it is not mere numbers that make an army; it is the training and equipment of the soldiers. It was not Russia's millions but Germany's army that kept Europe restless; it is not China's 400,000,000 but Japan's 80,000,000 that keep the United States uneasy.

3. *Industrial argument.* The population policy of all the industrial countries is influenced and often determined by the capitalistic class. The manufacturers claim that they must have an abundant supply of labor, and to secure this they will advocate large families, a liberal immigration policy, or any other policy which enables them to have plenty of cheap labor. The employers, for different reasons, restrict the size of their families, but oppose the use of contraceptives among their workmen. They see that "the unrestricted multiplication of their working classes, by causing a competition for wages, will create a cheap labor market."[11] Such is a pure class argument. "Family limitation by the workers lessens the number of wives and children forced into the factory and spares the worker," writes Ross, "the necessity of taking the first job that offers. It raises wages at the expense of profits and hence is anathema to the hiring class. Employers yearn for a crowded labor market, which provides them all the labor they can use in brisk times, and, in ordinary or bad times, causes a competition for employment which gives them the whip-hand."[12]

Many of the poor workmen, not knowing how to prevent conception, have large families. This keeps the labor market flooded so that even in prosperous times some 3,000,000 men

[11] Blacker, C. P., "Birth Control and the State," Dutton, 1926, p. 5.
[12] "Standing Room Only?" Century, 1927, p. 205.

are out of employment in the United States. Workmen compete against workmen, fathers against sons, husbands against wives, mothers against daughters, and brothers against sisters. Thus, real wages and the standard of living are kept down, both of which result in the continued reproduction of large families.

The opposition to widespread contraceptive knowledge, however, does not stop with manufacturers because "owners of every form of natural wealth see their properties more quickly appreciate if population grows rapidly. Country landlords are gladdened when the competition of would-be tenants bids up the rental of their farms. City landlords find their rent-rolls lengthen as a result of urban growth. The more of a mushroom the city, the sooner down-town lots will be worth a fortune per front foot. The profits of the owners of forests, water-power, coal deposits, ore beds, oil lands, and waterfront rise as the consuming public waxes. Obviously the true policy for an ambitious proprietary class is to avoid having many sons to share the family fortune among and at the same time to encourage proletarians to have large families whose expanding needs will confer more value upon their properties." [13]

The fact is the proletariats, with the exception of the peasants of France, have never been on a birth strike. They are the chief sufferers in our population and it is unjust that people continue to advocate policies which cause their suffering to continue. East says, "I have had occasion to examine a small sample of a hundred or two letters taken at random from among the thousands of pleas to be relieved of excessive childbearing addressed to some of our 'Welfare' societies. Their tales of ill health, of toil and drudgery, of shrunken bodies and blighted souls, of children sentenced at birth to death or, worse, perhaps, to hopeless lives, are tales of shame

[13] *Ibid.*, pp. 204–05.

to the country which permits the necessity of their being written."[14]

Our wealthy class, manufacturers, militarists, and religious leaders need to learn that what affects one element of the community affects all elements. One group cannot make much progress so long as another part remains stationary. Although it is generally agreed that the working class possesses the least mental ability, there are those who declare that our industrialism makes it necessary to retain just such a group. We must, however, reckon with the fact that even the "mere presence of hordes of low-grade men and women condemned by their very natures to incompetency and failure automatically engender poverty, invite exploitation, and drag down others just above them in the social scale."[15]

4. *Eugenic argument.* Some people oppose the use of contraceptives on eugenic grounds, because they think there is a developing process that goes with parenthood, and that because of the use of contraceptives there will be an excess of single-child families. Undoubtedly desired parenthood causes the best qualities to develop in the parents. There appears to be a physical as well as a psychical development with parenthood. On the other hand, thousands of women because of pelvic deformation and various diseases, cannot give birth without sacrificing their own lives, and as a result many die because of child-bearing. The dread of undesired pregnancy is such a nightmare in the lives of millions of women that it brings on nervous diseases and often premature death. Kirch asserts that "the continued fear of pregnancy will in most cases do more injury to the feminine system than all the preventive measures in the world."

The advocates of birth control point out that the use of contraceptives does not necessarily mean more one-child fami-

[14] "Mankind at the Crossroads," Scribner, 1923, p. 322.
[15] Stoddard, L., "The Revolt Against Civilization," Scribner, 1922, p. 246.

lies but more small families. Furthermore, it has not been proved that first-born children are inferior. Investigations by Clark University and by Karl Pearson seem to show that first-born children are inferior, but other reports show that other things, rather than being first-born, cause the inferiority. There are more still-births among first births, but this appears to be due to the youthfulness of the mother rather than to the fact that the birth is a first birth. Many of our great men are first and only children. Studies by Cattell, Ellis, Galton, Gini, Holmes, and Yoder seem to show that the first-born of a family of children is more apt to be the strongest. Studies by Ansell, Ellis, Galton, Redfield, and Yoder attempt to show that the age of the parents has something to do with the mentality of children. It is pointed out that Aristotle's father was 58 when he was born, Confucius' father 71, Benjamin Franklin's father 51, Josiah Wedgeworth's father 43, and Charles Darwin's father 43. Some authors believe that when the father and mother are both over forty, the children are stronger physically and mentally.

Reports from birth control countries indicate that the people of those countries are becoming larger and stronger. Contraceptive knowledge has been widespread in Holland for many years and by royal decree since 1888. "According to the official Statistical Year Book of the Netherlands," writes Dr. Knopf, "the proportion of young men drawn for the army over 5 feet 7 inches in height has increased from 24½ to 47½ per cent since 1865, while the proportion below 5 feet 2½ inches in height has fallen from 25 per cent to under 8 per cent."[16] Later reports show that there has been an average increase of 4 inches in height of the people of Holland in the last 30 years.

One of the problems that is giving the eugenists grave concern today is the rapid increase of the pathological stock.

[16] "Preventive Medicine and Birth Control," reprinted from *Medical Times*, April, 1917, p. 6.

The advocates of birth control think that in it we have a remedy for this mitigated evil. Margaret Sanger gives an account of the fertility of the unfit, showing that such groups as the Kallikaks, Jukes, Hill Folks, and Zero marry, separate, and re-marry almost at will, always reproducing their kind, whether married or single. The fertile women of the Jukes average 4.3 children each and those of the Nam family 4 children each. East states that "in the United States there are between 5 million and 6 million people who are often mentally above those who properly can be committed to institutions yet who lack sufficient intelligence to go through the primary grades of our public schools. In addition, the same method of calculations shows about 20 millions whose intellects will not carry them through the grammar schools even with hard driving. People with no sense worthy the name, defective stock, over 5 millions; people with little sense, scrub stock, 20 millions. These are the people who multiply at from one and a half to twice the rate of the superior classes of our population. And we expect to restore the balance by expecting the latter to compete with them in the size of their families."[17]

One strange thing about modern civilization is that we build many kinds of institutions to care for our unfit, and at the same time seek in many ways to burden and curb our superiors. "Fostering the good-for-nothing," said Spencer, "at the expense of the good is an extreme cruelty. It is a deliberate storing up of miseries for future generations. There is no greater curse to posterity than of bequeathing them an increasing population of imbeciles." According to East, "We are making stupendous efforts to prevent natural elimination of the anomalies, the lack-wits, and the ne'er-do-wells. The first part of this responsibility, preservation, society ought to accept in the interest of its own ethical development; the second part, perpetuation, is a sad mistake. And if the still

[17] "Mankind at the Crossroads," Scribner, 1923, p. 316.

small voice of common sense ever makes itself heard, there will be two changes for the better in future procedure. There will be as much recognition of and aid for the efficient as there is now for the inefficient; and there will be some slight police regulation and a great deal of educational restriction of the birth-rate among those who cannot bring healthy capable children into the world. The first change will show intelligence, the second will bespeak wisdom."[18]

Many people have expressed great hopes in the eugenic movement, but Margaret Sanger thinks that in what is called its constructive phase, "in seeking to reestablish the dominance of healthy strain over the unhealthy, by urging an increased birth-rate among the fit, the Eugenists really offer nothing more far-sighted than a 'cradle competition' between the fit and unfit." She maintains that they suggest "that all intelligent and respectable parents should take as their example in this grave matter of child-bearing the most irresponsible elements in the community."[19] Professor Weatherly says "the eugenic movement has gradually turned away from the idea of producing human thorough-breds to more prosaic but more feasible plans for cutting off the defective germplasm."[20]

We have hospitals, clinics, almhouses, and jails for our mental and physical defectives, yet we spend little extra money on the brilliant or offer them any real advantages. By taxes and other methods we make the efficient support the inefficient. "Why," asks East, "are the rotten timbers of society repaired and painted, while the more solid framework is abandoned to wind and weather? Why is the producer repressed and his fertility restrained to make room for the parasite? One of our prominent social workers is quoted as saying that every child is worth $5,000 to society. Stuff and

[18] "Mankind at the Crossroads," Scribner, 1922, p. 231.
[19] "The Pivot of Civilization," Brentano, 1922, p. 105.
[20] "Social Progress," Lippincott, 1926, p. 10.

nonsense! Some of them are not worth 5,000 Soviet roubles—they are liabilities, not assets; others are worth golden millions. If prosperity is to be promoted, the assets should be increased and the liabilities reduced." [21]

It has been shown that the birth rate of people varies with their occupation; those in the lowest economic positions produce the largest families. Certain persons believe that the mentality of children varies with the occupation of the father.

CHILDREN'S MENTAL-TEST ABILITIES IN RELATION TO FATHERS' OCCUPATIONS [22]

Occupations	*Indiana Study*	*Columbus Study*	*Madison Study*
Professional	83	1.42	114
Business	66	1.26	104
Skilled trades	47	1.22	97
Unskilled labor	39	.83	89
Farming	27	....	94
Number tested	1,206	2.28	2,782

Social customs are such that many of our eugenically fit cannot have families because of low salaries. Without doubt thousands of these "young men and women, physically and morally strong, would gladly marry if they knew that they could restrict their family so as to rear a few children well. But their fear of large families retards, and often prevents, their happiness and, *ipso facto,* the procreation of a better and stronger manhood and womanhood. The woman withers away in sorrowful maidenhood, and the man, yielding to overmastering sexual instincts, seeks relief from unfortunate and often diseased prostitutes, with the resulting propagation of

[21] "Mankind at the Crossroads," Scribner, 1922, p. 232.
[22] Hart, H., "Occupational Differential Fecundity," *Scientific Monthly,* Vol. XIX, November, 1924, p. 531.

venereal disease and all their dire consequences—sterility, extreme physical and mental suffering, infection, pelvic disorders, miscarriage, premature labor, a dead child or one tainted with disease—a cripple or an idiot.''[23]

We hear the cry that our laws, ethics and customs in this country foster the reproduction of the unfit; and that as a result the lower strata are largely reproducing the race while we breed out our brains by forcing pretentious celibacy, late marriage and small families among our superiors. ''The fertilities of the different social strata have shown,'' writes R. M. MacIver, ''in the last sixty years, a remarkable divergence. Consequently, the reënforcement of the population is taking place in larger measure from the lower economic ranks and in smaller measure from the higher.''[24] According to Davenport at the present rate 1000 Harvard graduates of today will have but 50 descendants two centuries from now. Speaking of our law against the spread of contraceptive knowledge, East says, ''Some day this law will lead the list of barbarisms committed by supposedly civilized peoples, taking precedence over the English mutilations and death penalties for petit larceny and the legalized witchcraft assassinations of our own colonial days; but it stands on the statute-books now, marking us to the world as a backward nation. To be sure, it is a dead letter for the majority of the educated and the well-to-do. Judged by the size of their families it is broken with impunity by the hyprocrite who defends it, the law-maker who refuses to repeal it, and the justice who is appointed to uphold it. But the poor suffer. And not always only the poor. I have read letters from intelligent educated mechanics, tradesmen, and merchants, from the super-educated who possess sheepskins ornamented with a college degree, and even from physi-

[23] Knopf, S. A., ''Birth Control and the World Crisis,'' *The Nation*, Vol. III, November, 1920, p. 589.

[24] Dublin, L. I. (Editor), ''Population Problems in the United States and Canada,'' Houghton, 1926, p. 287.

cians, who knew less about parenthood from choice than the average Bantu negro submerged in Central Africa.'' [25]

''In the United States today,'' writes Arthur Gleason, ''physicians are prevented by law from giving information to married couples, no scientific and worthy literature on the control of parenthood exists, and hospitals are afraid to advise the mothers of the poor.'' In Holland, New Zealand and Australia ''the necessary knowledge is practically universally obtainable. In England, such literature as 'Wise Parenthood' is widely circulated. Our own country is today the most backward of modern civilized nations in the knowledge which mothers are given.'' [26]

In his presidential address before the First International Eugenic Congress, Leonard Darwin said: ''As an agency making for progress, conscious selection must replace the blind forces of natural selection; and men must utilize all the knowledge acquired by studying the processes of evolution in the past in order to promote moral and physical progress in the future. The nation which first takes this great task thoroughly in hand will surely not only win in all matters of international competition, but will be given a place of honor in the history of the world.'' Popenoe and Johnson think that ''The problem of eugenics is to make such legal, social, and economic adjustments that (1) a larger proportion of superior persons will have children than at present, (2) that the average number of offspring of each superior person will be greater than at present, (3) that the most inferior persons will have no children, and finally that (4) other inferior persons will have fewer children than now.'' [27]

In ''The Groundwork of Eugenics,'' Eugenic Laboratory Lecture Series II, p. 23, Karl Pearson says: ''The conception of the destruction of the less fit as beneficent factor of hu-

[25] ''Mankind at the Crossroads,'' Scribner, 1923, pp. 324–25.
[26] ''Birth Control,'' *Survey*, Vol. 47, October 22, 1921, p. 113.
[27] ''Applied Eugenics,'' Macmillan, 1918, pp. v–vi (Preface).

man growth must become part of our mental atmosphere, we must look upon it as a chief cause of the mental and physical growth of mankind in the past, not as a blind and hostile natural force carelessly crushing the single life, but as the source of all that we value in the intellect and physique of the highest type of manhood today."

Human fecundity is becoming a serious problem in our age. Checks have always been operating, but the primitive eugenic checks have been supplanted by the dysgenic checks of today. And yet people still advocate late marriage, apparently not realizing that this affects the best element of our population and promotes social evils. "Social customs," says Oldham, "discouraged early matrimony. Whether late marriage is a tolerable means of preventing excess of population depends, apart from all other considerations, on whether there is any hope of its being generally adopted without recourse to vice. Prostitution and other social evils are a heavy price to pay for the control of population by this means." [28]

According to eugenists we need to work toward a selective fertility. They think the day will come when a large part of our population will not be permitted to reproduce. "If the birth-control exercised by individual parents," writes Professor Irving Fisher, "could itself be controlled by a eugenic committee it could undoubtedly become the surest and most supremely important means of improving the human race. We could breed out the unfit and breed in the fit. We could in a few generations and, to some extent, even in the life time of us of to-day, conquer degeneracy, dependency, and delinquency, and develop a race far surpassing not only our own but the ancient Greeks." [29]

Eugenic measures and the use of contraceptives will be opposed because the often repeated quotation of Professor

[28] Oldham, "Christianity and the Race Problem," Doran, 1924, p. 199.
[29] "Impending Problems of Eugenics," *The Scientific Monthly*, Vol. 13, September, 1921, p. 223.

Thomas Nixon Carver of Harvard University remains true: "Foxes think large families among the rabbits highly commendable. Employers who want large supplies of cheap labor, priests who want large numbers of parishioners, military leaders who want plenty of cheap food for gunpowder, and politicians who want plenty of voters, all agree in commending large families and rapid multiplication among the poorer classes."

CHAPTER XX

POPULATION AND THE FOOD SUPPLY

THERE is a limit beyond which no form of life can increase and that ultimate limit is the available food supply. Many forms of life can increase their food supplies, but only within certain limits. Plants can draw from the soil and atmosphere and by depositing their leaves and stalks on the ground can build up a better soil in which their descendants can grow. Certain plants have developed a technique for catching insects upon which they practically live. Some plants have become parasites and live on other plants. The reproductive power of plants is so great, however, that the contest for space causes most of them to perish. Not having power to transplant themselves, they must live or die where they happen to germinate. We have seen plants smother their weaker and younger kindred in fertile soil, and we have seen a lone pea spring up on some pile of sand or clay bank to stand only a few days and wither away because there was an insufficiency of food.

Animals have certain ways of increasing their food supply. Many species of birds and animals migrate and thus increase their range. Some animals will store away food to live on when there is a scarcity, while others, like the ants, keep atropheds and thus increase their supply. A few have become parasites and live at the expense of others, but if they increase too rapidly they kill their beneficent companions and must themselves perish. Rabbits nibble the plants within certain ranges; while wolves depend on the weaker animals they can catch within a limited territory. For such animals there

may be an abundant supply of food on an island a few miles away but they have no way of reaching it. In general, animals depend on the food that comes to them or that they can find. They have no definite way of increasing their food supply within a certain territory.

Man's food supply is nothing like so rigidly limited as the supply for animals. By keeping domesticated animals, using farm implements, manufacturing, and so forth, man has been able to extend greatly his food supply, but there is a limit beyond which he cannot go. Man is definitely limited to the circumference of the earth. There may be other inhabited or inhabitable planets to discover, but he has no way of reaching them. He has gone to every section of the globe, and there are no new continents for a Columbus to discover. He must be content to roam around on the surface of this world and be subject to conditions here. Climatic conditions balk his penetration into the far north and south, and appear to make him sluggish in the tropics. Mountains and deserts defy him in many places. Excluding the arctics the land area is only about 33,000 million acres of which only about 13,000 million acres are available for food production.[1] Parts of this must be used for roads, buildings, recreation, and other purposes. The number of people this territory will support depends on several factors, such as the type of agriculture, and the economic and social organizations.

Population increases with economic development.—Every new means of securing a living appears to bring social unrest, migration, and an increase of population. So long as people live in a hunting stage, from twenty-five to fifty acres are required to support each individual. The domestication of animals and the change to herding permits an increase of population. The change to agriculture permits another increase. As already stated the pertinent question with each

[1] Compare East, E. M., "Future Food Prospects," *World Agriculture*, Vol. 2, 1921, pp. 130–32.

tribe, however, is "How many can the group support?" "There is no reason," says Swinburne, "to suppose there has ever been a community with no population pressure, and except for a very short time after a plague, or a famine, or both, such a state has never been possible."[2] Each time a new method has been adopted population has increased until it apparently approached the limit of subsistence, then has remained about stationary until another new method has been adopted which offered another opportunity for an increase. Whether an increase of population causes new economic methods to be discovered and adopted, or whether the adoption of new methods offers an opportunity for an increase of population cannot be proved. It would appear that the two work more or less in harmony. In discussing the increase in population in England during the eighteenth and nineteenth centuries, G. T. Griffith says that it is "not so easy to determine to what extent this increase in the food supply of the nation was a cause stimulating the growth of the population, or whether it was the increase in the population that was taking place for other reasons which made it necessary to increase the food supply and in turn stimulated agriculturists to the required experiment and enterprise. The truth probably lies somewhere between these two extremes."[3] Evidently population grew slowly during the lulls between discoveries and more rapidly after the improved way of making a living was adopted. The early European population grew slowly because it was living in a hand-power period. That the territory was heavily populated according to its economic development is shown by the fact that after a war or a plague a rapid increase of population took place. It is reported that after the Black Death swept Europe in the fourteenth century, the population increased rapidly for some years.

[2] "Population and the Social System," Macmillan (London), 1924, p. 61.

[3] "Population Problems of the Age of Malthus," Cambridge University Press, 1926, p. 176.

With the development of the Industrial Revolution population began and has continued to increase very rapidly where this influence has been felt. For 800 years previous to the Industrial Revolution the population of Europe probably increased less than one-half as fast as it did for the period from 1815 to 1920. Rossiter thinks the population of Europe numbered about 19,000,000 in the year 1000 and increased less than one-half during the early centuries. Levasseur maintains that Europe doubled her 90 millions of population during the nineteenth century. In 1750 the population of Great Britain was about 7,500,000 but by 1905, despite the fact that Great Britain lost heavily by wars, plagues, and emigration, it was five times that number. During the nineteenth century Germany lost many of her citizens because of wars, plagues, and emigration, yet her population increased about 300 per cent.

Most of the different parts of the world are now apparently increasing in population in proportion to their industrialization. Africa, China, and India have not yet been industrialized. Africa's native population has hardly felt the influence of modern industrialism and may not be increasing. Perhaps she has as many as her primitive methods of agriculture will support. China has lagged behind and most of China knows nothing of modern industrialism. She has perhaps not increased her population very much in the past century. India is still a backward country industrially and according to East her increase in population is only about 1.2 per cent per decade. Spain and Portugal are only partially industrialized and still retain a rather primitive method of agriculture. Their increase of population is far less rapid than that of some other countries less favorably situated. On the other hand, such countries as Great Britain, Germany, Holland, Japan, and the United States, Australia, and Canada are more completely industrialized and have a more rapid increase of population. Industrialism, however, is not the

only factor in population growth as shown by the fact that France has increased very slowly.

Modern economic development has made it possible for each nation and each section of a country to engage in occupations more suited to its particular climatic and geographic conditions. England supports about 41 per cent of her population by her own agriculture, but because of her coal deposits and her engagement in manufacturing she can exchange her manufactured goods with other countries, less densely populated and more adapted to agriculture, for food. Were it not for the power of exchange, England's population would perhaps have to be materially reduced. By very intensive agricultural methods Japan is able to support about 40 per cent of her population. With her manufacturing she supports the other 60 per cent. No nation today produces everything which it consumes. Each nation has certain occupations more suited to it than other nations; therefore it is advantageous to the world for each nation or section of country to engage in those occupations especially suited to it and freely exchange its products with other nations or sections for their specialties.

Just how much longer this manufacturing and exchange of goods will continue and to how much greater extent it will be developed is beyond our prediction. We know that the supplies of oil, coal, iron, and various other kinds of minerals are definitely limited and we have no power to increase the supply. We now have substitutes for some and substitutes for others are perfectly feasible, but there are not subsitutes for all and many of the substitutes are themselves very definitely limited. A change must take place some time and it may materially reduce population. "As millions of Europeans came into existence as a result of our industrial system," says Josey, "so millions will have to die if this industrial system fails."[4] Between 1800 and 1917 the production of

[4] "Race and National Solidarity," Scribner, 1923, p. 59.

pig iron and coal increased from fifty to seventy-five times; cotton twenty-fold, world commerce a little over twenty-fold, world shipping eight-fold. Between 1830 and 1917 railroads increased three thousand-fold and telegraphs three hundred-fold. It is inconceivable that such a rapid increase can continue indefinitely; hence a halt must be called somewhere. "In the main," writes A. B. Wolfe, "future improvements are to be 'looked for in the fourth decimal place.' There was a 'pace that killed Athens.' There are reasons for believing that we cannot maintain our own pace."[5]

Continents and their food supplies.—It is believed that a brief discussion of the agricultural conditions and possible extension of their food supplies will aid in bringing the population situation more clearly before us.

1. *Asia.* As we have been accustomed to consider Asia as the most densely populated country and the place where the securing of a living is the most difficult, the majority of the discussion will center around this continent. Parts of Asia are densely populated but other parts are not. China, the largest nation in Asia, is truly the riddle of the universe. No one knows the number of her population or how many she can really support. She is larger than Europe or the United States including Alaska. The census of 1902 gave her a population of 410,000,000. Other estimates place it between 350,000,000 and 450,000,000. Her crude density is given as 268 per square mile, but her provincial densities vary from 66 in Kwangsi to 683 in Shantung. C. G. Dittmer[6] reports densities in Shantung of 2,500, 2,700, and 3,000 per square mile, and 2,600 to the arable square mile in Chihli.

Although according to Ross, "It is not uncommon for 2000-2500 people to wrest all their subsistence from a square mile

[5] Dublin, L. I. (Editor), "Population Problems in the United States and Canada," Houghton, 1926, p. 67.

[6] Compare "Density of Population and the Standard of Living in North China," *Publications of the American Sociological Society,* Vol. XIX, 1925, pp. 196–99.

of land,"[7] China is reported to have hundreds of square miles of uncultivated land. While part of this land is very low in soil fertility and semi-desert, part can be cultivated with a reasonable yield. Her density of population, in general, however, varies with soil fertility. One-third of her area contains six-sevenths of her population. The delta region of the Yangtze Valley is the most fertile and has a population of about 40,000,000 in an area of fifty thousand square miles (an area about the size of the state of Illinois). On the other hand, Mongolia, containing an area about one and one-half times as large as that east of the Mississippi River, has only about two people per square mile. "There are other regions of the Chinese Republic," writes Julean Arnold, "comprising hundreds of thousands of square miles, more sparsely populated than any state in the American Union, due primarily to lack of economic transportation."[8]

China's agricultural method, though considered primitive, is an efficient hand-power system, built up by experiences covering thousands of years of population pressure. Her farms are small: one-third contain less than one acre each; and two-thirds, less than two acres each. The truck garden method of cultivation is largely used and in sections practically all available soil is utilized. Ross tells us that one finds "no roadsides, no commons, no waste land, no pasture, no groves nor orchards, not even a dooryard or a cow-pen. Save the threshing-floor, every outdoor spot fit to spread a blanket on is growing something."[9] Again he says, "Where the climate is friendly, the amount of labor that will be spent in digging a slope into rice fields and carrying a stream to them is beyond belief. In one case I noticed how a deep notched, rocky ravine in the flank of a rugged mountain had been completely transformed. The peasants had brought down

[7] "Standing Room Only?" Century, 1927, p. 123.
[8] "China's Economic Resources," in "Occidental Interpretation of the Far Eastern Problem," 1926, p. 178.
[9] "Standing Room Only?" Century, 1927, p. 130.

countless basketfuls of soil from certain pockets at the foot of the cliffs. With this they had filled the bottom of the V, floated it into a series of levels, banked them, set them out with rice, and led the water over them. So, instead of a barren gulch, there is a staircase of curving fields, perhaps four rods wide and differing in level by the height of a man. I have also seen the sides of a gully in which a child could not stand undiscovered cut into shelves for making a string of rice plots no larger than a table-cloth, irrigated by a trickle no bigger than a baby's finger."[10]

It would, of course, be absurd to take the last two quotations at their face value and say that they picture a condition typical of China, and that China, therefore, is overpopulated. They are evidently the worst conditions in the most densely populated areas. Arnold says, "It is a mistaken idea to speak of China as overpopulated."[11] He further points out that while four-fifths of the Chinese are engaged in agriculture, only two-fifths in the United States are thus engaged; yet the farmers in the United States live much better and produce proportionately far more for exportation. "China," Arnold continues, "suffers badly through poor and inadequate irrigation, through deforestation, through lack of a knowledge of proper plowing methods, through little attention to seed selection, through usurious practices in financing the farming class, through a bad and uneconomic marketing system, through poor internal communications, and, in general through lack of co-operative industry, in spite of the highly developed industrious and thrifty personal traits of character of the people."[12]

There is no doubt but that the Chinese can improve their agriculture and transportation methods, utilize their natural resources, and move from more densely to less densely popu-

[10] "Standing Room Only?" Century, 1927, pp. 128–29.
[11] "China's Economic Resources," in "Occidental Interpretation of the Far Eastern Problem," 1926, p. 178.
[12] *Ibid.*, p. 183.

lated areas, and thereby support a much larger population. Although they are moving over into Manchuria, Mongolia, and Siberia at the rate of a million per year, many prefer to remain in the locality of their youth, to care for the graves of their ancestors, and to eke out a bare existence as did their grandparents.

English strategy has given "famine-stricken, pestilence-smitten, cobra-bitten India" a new lease on life. Her density, population pressure, and standard of living compare favorably with those of China. Some two hundred million of her seven hundred fifty million acres are cropped, and at least one hundred fifty million acres more might be under pressure. Already she is considered more completely an agricultural country and more completely cropped than any large country in the world. "The present condition of Indian agriculture and of the 219,000,000 human beings dependent thereon," declares Aga Khan, "is the greatest and most depressing economic tragedy known."[13]

Professor K. T. Shah of the University of Bombay tells us that the people of India are so underfed that "Either one in every three individuals must go hungry; or—what is much more easy, insidious and injurious—every one must cut one out of every three meals necessary to him. This inevitably becomes the common practice, and the consequence is the progressive deterioration in physique and energy that renders additional production with a view to make up for the deficit increasingly more and more difficult. The vicious circle is complete. The Indian people are, relatively speaking, debilitated and inefficient because they have not enough food available. They cannot have enough food—they cannot produce sufficient for their requirements on the lowest standards—because they are lacking in strength and energy!"[14] Writing of the conditions of the rice cultivators in southern India,

[13] "India in Transition" (Bombay), 1918, p. 201.
[14] "Wealth and Taxable Capacity of India" (Bombay), 1924, p. 252.

Professor Gilbert Slater says that "their earnings in grain and coin barely suffice for the subsistence of families large enough to maintain their numbers from one generation to another, the surplus offspring dying, they are habitually hungry, and it is only because they make their own huts in their spare time, collect their own fuel, need scarcely any clothing and enjoy abundant sunshine, that they can subsist at all."[15] Yet India exports large quantities of food. East says of them: "Millions of squalid people, densely ignorant and unspeakably filthy, succeed in exporting really immense quantities of wheat, oil-seeds, tea, cotton, and jute, as well as smaller amounts of various other products of the soil. Probably nine-tenths of them never had enough to eat in their lives. Their margin of safety from starvation is practically zero. Still, they export food."[16]

It is not India's population that causes life to be so hard, but rather backward agricultural methods, poor transportation, and above all her religions, customs, and superstitions. One-quarter of the area of India contains two-thirds of the total population, while three-quarters contain but one-third. Burma and Assam have large areas to be settled, and even densely populated Bengal has large tracts waiting to be reclaimed. According to L. F. R. Williams[17] India's veneration for cattle causes her to have a surplus of 24.5 million cattle. The worship of cattle alone is estimated to cause India to lose each year over four times the total land revenue. The Indians will not take life and as a result two-thirds of their crops are devoured by insects, birds, and animals.[18] It is absurd to say that India has to any degree reached her maximum population capacity.

The inhabitable regions of Japan are said to have a density

[15] Pillai, P. P., "Economic Conditions in India," Dutton, 1925, p. xiii.
[16] "Mankind at the Crossroads," Scribner, 1923, p. 88.
[17] "India in 1924–25," pp. 239–40.
[18] See also Spender, J. A., "The Changing East," Stokes, 1926, p. 193, and Chirol, Sir Valentine, "India," Scribner, 1926, pp. 179–80.

much greater than that of Belgium, the most densely populated nation of Continental Europe. Japan wishes to expand and is "crying for a place in the sun." Official reports gave her a net increase in population in 1917 of 612,774 (875,000 in 1925), and reported an increase in the marriage rate, a decrease in the divorce rate, and a drop in the death rate. Japan is a little larger than the state of Montana, having 94 million acres of land, but only a little over one-sixth or about 18 million acres are suitable for agriculture. On this small amount she is trying to support 56 million people. East thinks she is not supporting over 40 million by her own agriculture, the others being supported by the exchange of her factory products with other countries for food. Some authors think there is very little possibility of her supporting more by her own agriculture. Already she is scraping the soil from the uncultivated parts and placing it on arable land, and at the same time is using large amounts of fertilizer. She has graded 11,000 square miles of land practically to a water level, and periodically changes the soil between rice fields and mulberry orchards.

Japan, however, is far from her population limit. Some of her higher government officials and other writers do not consider that she is over-populated. The government has tried to persuade those in the crowded sections to move into the less densely populated areas but with little success. "We are crowded in this Island and Colonial Empire," writes Viscount Kato, Premier of Japan, "but we are far from the end either of our room or our resources. It is not altogether a question of how much arable land you have; it is also a question of how you cultivate it. Japan cultivates her acres intensively. She makes one tan, or a quarter of an acre, feed one mouth; she makes one acre feed four. Congestion exists principally in the southern and southwestern areas. People can migrate to the north, where there is more room, and they

will do so when they must; they will not do so before."[19] On the other hand, some of the Japanese, as evinced by the editor of the Tokyo *Yorodzu,* consider that Japan has a serious population problem. "How shall we dispose of our surplus millions? Our small country can hardly find room within its narrow boundaries to accommodate its yearly increase of half a million people. We cannot kill them wholesale, nor can we fill up the Sea of Japan and make dry land for them to settle on. We would like to go to Kansas or anywhere but Hades where we could escape starvation; but however hospitable America may be, she refuses to receive so many newcomers all at once."[20]

One of the great problems China, India, and Japan are facing is where can they find an outlet for their populations which wish to emigrate. The United States, Canada, Australia, and South Africa have made it known that they do not want Asiatic immigrants. Parts of their own nations, other parts of Asia such as Siberia, Turkey, Persia, Arabia, etc., and the tropics are sparsely settled and open to them. The Chinese, like the Jews, can thrive almost anywhere, and have the cold regions of Asia and the tropics open to them, but the Japanese are inhabitants of a temperate zone and are not inclined toward hot or cold climates. Brazil offers fifteen pounds sterling for every Japanese immigrant laborer, but the number going there dropped from 6,000 in 1913 to 1,000 in 1921.

For the year 1929 Japan set aside 4,800,000 yen to enable 24,000 persons to emigrate. Within ten years she is also to expend 3,000,000 yen to acquaint her citizens with countries to which they may emigrate. A Japanese corporation for colonization has recently accepted an offer from Brazil of

[19] *Japan,* November, 1925, p. 13.
[20] Quoted by East, E. M., "Mankind at the Crossroads," Scribner, 1923, p. 93.

2,500,000 acres, on which Japanese colonists are to be settled. This land is in the state of Para in the Amazon valley, near Acara where 60,000 Japanese have settled in the last forty years. Some 40,000 Japanese are to be settled on the new territory within the next ten years.

Japan is only partially industrialized; with more complete industrialization and some change in agricultural methods she perhaps will have room for her population. China and India, and the other Asiatic countries have not yet been industrialized. If these countries are affected as the countries of northwest Europe have been, a greater upheaval than ever occurred in Europe will perhaps take place, and no one can measure their population limits. Today Asia contains around 921,000,000 people or 52.6 per cent of the world population, and embraces 17,206,000 square miles or 32.57 per cent of the total land area; yet she cultivates only 18 per cent of her land and has a density of only 53.5 persons per square mile.

2. *Europe.* It is claimed that during the first half century following 1810 the population of Europe increased 51 per cent; during the next half century 55 per cent. Europe is accredited with 19,000,000 people in 1000 A.D., and 460,000,000 in 1915, despite the fact that she lost 40,000,000 between 1810 and 1915 by emigration. Although her population has grown rapidly and some claim that she is overpopulated in sections, the truth of the matter seems to be that her citizens had a greater abundance of food, more clothing, and more luxuries in 1915 than in 1000. There is little evidence to show that Europe as a continent has reached her population limit or is really overpopulated. Her territory, comprising 7.4 per cent of the land area, is divided as follows: cultivated lands 27 per cent; prairies 24; forest 28; unproductive 21. In spite of her small area and rapidly increasing population, she is considered the greatest agricultural region in the world. In 1913 she was growing 90 per cent of the world's potato crop; 65

per cent of the wheat, rye, oats, and barley; 43 per cent of the sugar; and one-third of the cattle.[21]

Belgium, with a population density of 652.7 per square mile, is the most densely populated country of Continental Europe. Four-fifths of her territory is under cultivation and more people are engaged in agriculture than in all other trades. Germany, another densely populated country, devotes 90 per cent of her territory to the production of food supplies. These two countries are examples of scientific agricultural activities coupled with industrial efficiency.

Other countries, principally agricultural, though less efficient are Spain, Austria, Esthonia, Italy, Bulgaria, Lithuania, Jugo-Slavia, Finland, and Russia. Engaged partially in agriculture are Poland and Portugal. In Czechoslovakia, Great Britain, France, intensive though not extensive farming is carried on. Greece and Albania have small amounts of land that are cultivable. The soil and climate of Norway are inimical to agriculture, 70 per cent being practically uninhabitable to man.

Bulgaria, Rumania, Russia, Jugo-Slavia, form the granary of Europe. Another group of countries of considerable importance to the world as food-producers are The Netherlands, Sweden, Latvia, Denmark, Switzerland, and Finland. Although not exclusively devoted to cattle-raising, these countries produce large quantities of dairy products.

As indicated already there is quite a variation in the agricultural methods employed in these different countries. Greater emphasis is now being placed on agriculture and as a result many changes are taking place and more scientific methods employed. Rumania is a good example of this readjustment. Prior to the World War one-half of the land area was held by less than 6 per cent of the land owners. In 1917 laws were passed which reduced large estates—some contain-

[21] Compare Roorbach, G. B., "The World's Food Supply," *Annals of the American Academy*, Vol. 74, November, 1917, pp. 1–33.

ing 40,000 acres—from 49 per cent of the total area to 14 per cent. In 1924 about 80 per cent of the population was engaged in agriculture. While surpluses for exportation have not reached pre-war levels, Hobson [22] considers that the adjustment has by no means reduced the ultimate efficiency of Rumania as an agricultural nation, and that in all probability it has meant a higher standard of living for the farmers. Italy is also making adjustments to meet the demands of her rapidly increasing population. She is placing emphasis on an increase in yields rather than more acreage. In Italy as in other of the food-producing countries of the world, soil, climate, economic pressure, and clarity of foresight must all be combined in solving the food problem as it becomes more and more pressing.

3. *The Americas.* Together, North and South Americas comprise 30.95 per cent of the total land area, or 16,212,000 square miles. Of this, 12 per cent is in cultivation; 40 per cent in prairies; 30 per cent in forests, and 18 per cent unproductive. Canada had about 58,200,000 acres under cultivation in 1924, and between 500,000,000 and 600,000,000 acres in timber. Although much of her territory is unsuited for farming, agriculture remains the stable industry.

Argentine is in the forefront among the countries that export food and raw materials such as wheat, corn, and chilled or frozen meats. Uruguay is extensively engaged in sheep- and cattle-raising and exports large amounts of animal products. She is also engaged in farming. If East is correct these will be the last two countries to quit exporting foodstuffs.

Brazil, the largest of the South American Republics, occupies more than half of the continent. While agriculture holds chief place, the chief products are coffee and rubber. Venezuela produces mostly coffee and cereals. Although Chile pro-

[22] Compare Israel and Landis, "Handbook of Rural Social Resources," University of Chicago Press, 1926, pp. 149–50.

duces wheat and meat, she is important for her nitrate. Only a small portion of Colombia, Ecuador, and Bolivia is under cultivation, or, is apparently likely to be.

It was estimated that the United States had in 1910 about 750 million acres of range land, 600 million acres of forest and wood land, 478 million acres of improved land, 40 million acres of actual desert, and 40 million acres of cities, roads, and railways. About 879 million acres of her total land area were in farms, 319 million acres of which were in crops, 134 million acres either in pasture or lying fallow, and 25 million acres in farmsteads. The United States possesses a variation in climate and soil. Even though the winters are long and severe in the north and a semi-tropical climate prevails in the extreme south, the country for the most part is temperate. A wide range of food production also obtains: in the northern and central part of the Mississippi Valley is the great corn and wheat belt; in the south rice, cotton, vegetables and sub-tropical fruits grow luxuriantly; on the great plains and scattered throughout the states the raising of cattle, sheep, hogs, and poultry is a valuable asset. The Rocky Mountain region is mostly devoted to raising live stock.

4. *Africa.* The continent of Africa comprises 11,515,000 square miles or 21.99 per cent of the total land area. Twelve per cent is cultivated; 35 per cent uncultivated; 25 per cent in forests; and 28 per cent in deserts and unproductive lands. Agriculture has not been extensively developed on this continent, due to deserts, unfavorable climatic conditions, exploitation by those holding protectorates, and the backward conditions among the native tribes.

In Abyssinia little food value is produced except the sugar, oranges and bananas which grow in the south. Central Africa is undeveloped. In the Union of South Africa corn is widely grown, sheep-raising and dairy-farming engaged in, and manufacturing carried on. Egypt has long been known for its fertility. Its tillable area is estimated at 13,000 square

miles; and in lower Egypt perennial irrigation makes possible the production of two and sometimes three crops per year. Some authors point to Africa as a continent of unlimited agricultural possibilities, but others are skeptical about Africa's becoming the source of an abundant food supply.

5. *Australia.* This country, which is about the size of the United States, is considered the largest island and the smallest continent in the world. It contains 6.59 per cent of the total land area, and is divided as follows: cultivated lands 5 per cent; pastures 35 per cent; forests 35 per cent; deserts 25 per cent. The interior is all but a desert with little possibility for irrigation; while the rim is fertile and well watered. Her main products are sheep and wheat. Experiments seems to show that she does not possess the agricultural possibilities she was once thought to have.

The population limit.—The real population problem, according to Wolfe is "attaining, and maintaining, the most productive ratio between population and natural resources."[23] Economically, the desirable thing is not "to wring from the earth the largest possible *total* product, but to obtain, in return for whatever expenditure of effort the people may regard as normal and proper, the largest, permanently practicable, *per-capita* product."[24] This balance the majority of estimates do not take into consideration. In prognosticating the population limit of the world two factors are used: (1) The rapidity in the increase of numbers, and (2) The ultimate production of food.

1. *The rapidity of increase in numbers.* East estimates that the population of the world is increasing at about 0.7 per cent per annum, while Knibbs places it at 1.16 per cent. According to the former 12 million people, enough to make a new Belgium, must be prepared for each year; according

[23] Dublin, L. I. (Editor), "Population Problems in the United States and Canada," Houghton, 1926, p. 68.
[24] *Ibid.*, p. 68.

to the latter, 20 million, enough to create a new France, each biennium. Ross,[25] calculating that the world's population is now 1900 million, assuming that it doubles every sixty years, and making no allowance for future vanquishing by diseases, calculates that by 1987 there will be 3800 million; by 2047, 7600 million, and by 2107, 15,200 million. Pearl,[26] through his mathematical calculation, predicts a population of 2026 million in 2100. The "potential" population of the world is placed by Penck[27] at 8000 million.

The ultimate limit of population, however, cannot be adequately adjudged through statistical analysis. "It is too far a cry," writes Wolfe, "from fruit flies in a jar [the basis of Pearl's theory] to human beings who have had a taste of rational self-direction. There is an implied fatalism in statistical curves—a fatalism unjustified by the underlying facts. We are likely to forget the human motives which lie back of the phenomena summarized in our logarithmic charts. The future trend of a curve can be predicted only if we know these motives and the future changes which they are likely to undergo. But psychological factors are not always predictable. Herein lay the defect of Malthus's analysis. Herein also lies a great defect of current population literature."[28]

An understanding of the rate of increase of population comes not so much from a study of statistics, or biology, as from a study of sociology. After all, the increase and decrease in population is becoming more and more a matter of social adjustment. The culture pattern of the group influences the size of the family. Our differential birth rate obtains because the upper groups have established a norm and

[25] Compare "Standing Room Only?" Century, 1927, pp. 116–17.
[26] Compare "The Biology of Population Growth," Knopf, 1925, pp. 172–73.
[27] Compare "Das Hauptproblem der physischen Anthropogeographie," 1924, pp. 242–57.
[28] Dublin, L. I. (Editor), "Population Problems in the United States and Canada," Houghton, 1926, p. 75.

are thus regulating the size of their families in order to maintain this standard. By limiting the size of their families, couples may retain a coveted social position, enjoy certain luxuries, and free themselves from financial and other worries incurred by rearing large families.

The decrease in infant mortality in progressive countries has been due to sanitation and medical skill, both of which are but social adjustments. These same measures have been chiefly responsible for the increase of longevity. Hart even goes so far as to predict that "the expectation of life of babies born in the year 2000 will be over 100 years."[29] These are unpredictable human controls that are ever affecting population curves.

2. *The ultimate production of food.* During the past no problem of civilized man has been more enduring than that of providing sustenance, and in the future no problem is likely to be of graver concern. While some authors have optimistically predicted that the world will be able to feed itself indefinitely; others have pessimistically claimed that population is rapidly outrunning its means of subsistence. Again the sociological elements enter. Basic to the utilization of the present food supply and the future possibilities of production are the attitudes and prejudices of the populace.

(a) THE REQUIRED AMOUNT OF FOOD. Any estimate of the possible need of food based upon a forecast of an expected increase of population is largely guess work. To the coolie, subsisting on a few grains of rice, the American, consuming large quantities of food, is little less than a gormand. Furthermore, the regulation diet calls for milk, cereals, meat, vegetables, and sugar, yet many of our own inhabitants are not meat eaters. Using 3500 calories per day per person and allowing for a waste of 600 calories, and assuming maximum production per acre, Taylor arrives at the following conclu-

[29] "The Urban Expectation of Life in 2000 A.D.," *Proceedings of the American Sociological Society,* Vol. XV, 1920, p. 118.

sions: "When the ultimate population of the United States reaches 200 million, one does not see how the country can raise the desired primary foods, domesticated animals, lumber, paper, and fibers." [30]

The United States Department of Agriculture has estimated that by practicing the "extreme economies represented by the pre-War German standard of food and timber consumption, and allowing for the maximum economies in production shown to be possible by European experience, a maximum population of 350 million is indicated for the United States." [31] Professor R. J. McFall of the Department of Agricultural Economics of Massachusetts Agricultural College thinks that the United States can easily support a population of 350 million, and by employing German agricultural methods can feed 574 million.

The standard of living, to be an optimum standard, must vary from country to country, from religious sect to religious sect, from group to group, if it is to be used as a unit in determining the amount of food necessary for future generations. Obviously the amount of food required depends upon the standards of living maintained in the different parts of the world. Thompson, considering the relation of the standard of living to the progress of civilization, concludes "that population cannot continue to increase at its present rate without being more and more subjected to the actual want of food, provided the distribution of labor between agriculture and the non-agricultural industries continues in its present trend (the trend found in the more highly developed countries). Nor can a greater and greater proportion of the population be devoted to agriculture and the present rate of increase continue without checking a progressive standard of living. The non-agricultural industries are not yielding increasing returns in such ratio that they can furnish the necessary material means for a progressive standard to such a rapidly increasing

[30] Dublin, *Op. cit.*, p. 110.
[31] United States Department of Agriculture, *Year Book*, 1923, p. 497.

population. Thus whatever the direction of development, a progressive standard of life and a population increasing from 1.5 per cent to 2.0 per cent a year cannot go on together for long, in a large part of the world. Therefore, either our present standard of living must be simplified as an increasing proportion of the population becomes rural or the present rate of increase of population must be lowered. Probably both must take place in order to have a really progressive civilization.'' [32]

(b) THE POSSIBILITIES OF FOOD EXPANSION. Taylor in his estimation of the amount of food necessary for the future evinces great concern over our diminishing natural resources. ''The immediate outlook for mineral supplies in the United States,'' write Tryon and Mann, ''is encouraging. The ultimate outlook is discouraging.'' [33] The relation between the mineral resources and the food production is very close. At present our power and heat, which are ''but twin forms of the same thing'' are divided as follows: coal 65 per cent; domestic oil 16 per cent; natural gas 4 per cent; imported oil 2 per cent; water power 4 per cent; work animals 3 per cent; firewood 6 per cent; windmills less than 1 per cent. The demands upon power, the greater amount of which is furnished by coal and oil, will be greater as more improved methods of agriculture are employed.

When the primary potash reserves, the mines of Strassfurt, Alsace, Catalonia, and more recently the United States, are no longer sufficient, potash can be secured from silicate rocks; but such a change would require more power—a greater use of coal. The predicted shortage of cheap nitrogen, after the nitrate beds of Chile are exhausted, has been averted through the fixation of atmospheric nitrogen; but a greater demand is

[32] Thompson, W. S., ''Population: A Study in Malthusianism,'' *Columbia University, Studies in History, Economics and Public Law,* Vol. LXIII, 1915, pp. 163–64.

[33] Dublin, *Op. cit.,* p. 11.

made on power and heat. Improved farm machinery, the greater difficulties encountered in working partially exhausted mines, and transportation all make heavy inroads upon our principal sources of power. It is necessary, then, to consider the possible limitation of these when outlining the possibilities for increasing the world's food supply.

The possibility of expanding the world's output of food lies in five directions: (1) Extending the world's crop acreage, (2) Increasing the crop production per acre, (3) Engaging in aquiculture, (4) Introducing synthetic foods, (5) Eliminating food prejudices.

(1) During the nineteenth century the better of the cheap fertile land was placed under the plow. Some estimate that only 15 per cent of the land area of the world is under cultivation and that 60 per cent may be brought under. At present Asia cultivates 18 per cent of her area; Australia 5 per cent; Europe 27 per cent; the Americas 12 per cent; Africa 12 per cent. While it is possible that each of these continents could increase its acreage to some extent, the greatest possibilities lie in Canada and Siberia; the United States, Argentine, Paraguay, Uruguay, and Australia; Brazil and Africa.

R. H. Coats [34] claims that Canada has an arable area of 300 million acres with only 141 million now occupied in farming, and 71 million acres improved. Extended acreage is difficult, however, due to the fact that the climate is too cold for productive agriculture. Her cold territory could be used for reindeer but little for agriculture. Often announcements are made that a new kind of wheat or other food-producing plant has been discovered that will mature in ten days less time than other varieties. This means little in Canadian agriculture for it is the mid-season frost that kills the crops. Progress in this line will have to be made in the nature of producing frost-resisting plants.

In Siberia much the same conditions prevail. Baker con-

[34] Dublin, *Op. cit.*, p. 180.

siders "Western Siberia and the Steppes to the south constitute the largest area in the world of virgin land available for wheat." [35] He places the area available at 500,000 square miles.

In the United States there are 1.9 billion acres of land, but in 1919 only 365 million acres were harvested. After a careful study of crop possibilities, the Department of Agriculture has estimated that this country is physically capable of adding 600 million more to her acreage.[36] Such a project would involve, however, an enormous amount of labor. Baker, after a careful consideration, places the maximum possible increase of agricultural land at 47 per cent over improved acreage at present, or something less than 250 million acres.[37]

Argentine, Uruguay, and possibly Paraguay have potentialities for extensive agriculture. Irrigation in Australia, which was once thought to be a partial solution of the food problem, has not been highly successful. The conclusion of the matter seems to be: "Irrigation, dry farming, and the adaptation of new varities will increase the Australian and Argentine acreages, but their total capacity for food production will never be sufficient for a dense population." [38]

According to Ross, "the main reservoir of idle rich soil is the tropics, the world's last food frontier." [39] Although it has been predicted that in the future Brazil alone can support a population two-thirds as large as that of the world, and that Africa can be made to feed more than the entire human family of today, soil experts, however, are less sure. Even though

[35] "The Potential Supply of Wheat," *Economic Geography*, Vol. I, No. 1, March, 1925, p. 45.

[36] Compare U. S. Department of Agriculture, *Year Book*, 1923, Report No. 896.

[37] Compare "Land Utilization in the United States," *Geographic Review*, Vol. XIII, January, 1923, pp. 1–26.

[38] Lescohier, D. D., "Population and Agriculture," in Dublin, L. I. (Editor), "Population Problems in the United States and Canada," Houghton, 1926, p. 82.

[39] "Standing Room Only?" Century, 1927, p. 110.

the tropics have favorable temperatures and an abundance of moisture, the expense of reclaiming forests, swamps, and jungles, and the drawbacks to human efficiency are not conducive to optimism. "The Amazon region," conclude Marbut and Manifold, "cannot produce the things which the world consumes in large quantities and which require large areas of land for their cultivation, such as wheat and high-grade livestock products. And those products which it can produce in large quantity will inevitably meet with vigorous competition such that the rate of production increase will be inevitably slow." [40]

When population pressure demands it, large areas will not be found in every continent producing neither lumber, grass, nor food. When the time comes, 100 acres will not be used in grazing cattle to feed only 15 people, but will be feeding 420 people by being farmed in potatoes and other vegetables. If pressure ever necessitates it, parks, lawns, and roadways will have fruit-bearing shade trees, flower gardens will be vegetable gardens, and more sea foods will be utilized.

(2) Any consideration of an increase in production per acre available begins with the present conditions. East states that before the World War Germany was tilling 1.15 acres per inhabitant; France 1.5; Italy .98; and Belgium .57. He estimates that Germany was supplying about 72 per cent of her population by her own agriculture, France 70, Italy 64, and Belgium 37. For each man supported by her own agriculture Germany cultivated 2.0 acres, France 2.3, Italy 2.4, and Belgium 1.7. From the standpoint of efficiency per unit of production Belgium was 121, Germany 69, and France 23 per cent more efficient than the average for that part of the world. "If, therefore," writes East, "those countries of western Europe which have an agricultural efficiency averaging 70 per cent greater than the average for all advanced coun-

[40] "The Soils of the Amazon Basin in Relation to Agricultural Possibilities," *Geographic Review*, Vol. XVI, July, 1926, p. 442.

tries and probably over 100 per cent greater than the mean for all countries utilize 2.2 acres to provide food for each person, it would seem that 2.5 acres per capita as a future world average is as high a figure as one could reasonably set.'' [41]

If we contrast the two periods 1880–1890 and 1910–1920, we find that the American farmer was 16 per cent more efficient in the latter period than in the former. If the American farmer becomes as efficient as the English farmer, the yield should be at least 75 per cent greater than it is today. Countries vary widely in efficiency as the following table shows. Part of this, of course, is due to more primitive methods of agriculture, in part due to poor soil, but largely due to general inefficiency:

PRODUCTION OF WHEAT AND POTATOES, 1920–23.
Quintals per Hectare [42]

Country	*Wheat*	*Potatoes*
Germany	17.6	121
Denmark	29.2	152
France	13.8	73
Great Britain	21.6	153
Russia	5.1	78
Canada	11.1	105
United States	9.1	70
India	7.9	
Argentine	8.4	
Australia	9.0	64

East made a study of the efficiency of different nations as shown by their production of the six principal crops produced in the world. After studying the returns for a number of years of these principal crops—wheat, oats, barley, rye, corn, and potatoes—he submitted the following table,

[41] ''Mankind at the Crossroads,'' Scribner, 1923, p. 71.

[42] Hall, A. D., ''Feeding the World,'' *Atlantic Monthly*, Vol. 135, May, 1925, p. 682.

using 100 as a base to represent the weighted average of all the countries considered.

INDEX NUMBERS OF PRODUCTIVITY IN VARIOUS COUNTRIES [43]

Belgium	221	Austria	120
Holland	190	Hungary	113
United Kingdom	177	United States	108
Germany	169	Italy	96
Denmark	168	Rumania	94
Japan	137	Spain	93
Canada	136	Australia	76
Chile	136	Argentina	75
Sweden	128	Russia	71
France	123	Mexico	52

According to this table Belgium is the most efficient country in agriculture in the world. There seems to be no reason for Japan with her masses to feed, having such a low efficiency. East compares the total net cereal imports, excluding rice, with those of the United Kingdom for the years of 1911, 1912, and 1913, and gets the following results:

NET CEREAL IMPORTS [44]

	Average Net Imports, Bushels	*Per Capita Bushels*
United Kingdom	418,963,000	9
Germany	237,088,000	4
France	116,852,000	3
Belgium	103,790,000	14
Italy	84,376,000	3−
Holland	76,148,000	12+
Sweden and Norway	36,718,000	5

A table like this is unsatisfactory because some countries grow most of their cereals and import other foods which they are less efficient in producing. But, if it tells us anything, it

[43] "Mankind at the Crossroads," Scribner, 1923, p. 171.
[44] *Ibid.*, p. 84.

shows that countries like Belgium and Holland are more efficient in production because the pressure of population forces them to import more foods. Perhaps all countries could be far more efficient than these if pressure demanded it. The fact is, farming is a poor paying occupation in most countries and farm products are so cheap in many countries that farmers can only afford to cultivate the most fertile soil.

It has been estimated that if the agricultural output per acre were increased to equal that of Germany, the increase in the United States would be 33 per cent. The Department of Agriculture expresses the opinion that for our 10 important crops it would be possible to increase the average production about 46 per cent "when economic conditions shall justify the requisite cost of production." Such an increase would require a much greater expenditure for labor and fertilizer than will be profitable for a long time. Even in Germany, The United Kingdom, Belgium, and France "the extra expenditure is proportionately much greater than the increase of yield, so that the yield per unit of labor is much smaller than in the United States." [45]

Baker estimates that Australia could produce four times as much wheat as now; New Zealand three times as much; and Siberia, by adding 150,000 square miles of her available land, 1400 million bushels of wheat. In fact, he considers that the world's wheat production could be tripled but the terms would be hard.

By the elimination of waste and a greater diversity in farming land can be forced to produce more per acre. For instance, in Argentine, it was found that alfalfa planted in a semi-arid grazing section would send its roots down fifteen feet beneath the surface to reach water. As a result a sparse pasture has been changed into an abundant forage crop and seven steers are kept fat where one scarcely existed before.

[45] U. S. Department of Agriculture, *Year Book*, 1923, pp. 475–77.

One wheat farm in Kansas, which has been cropped with wheat for 26 consecutive years, had a yield of 53 bushels per acre in 1920, and 47 in 1921. When compared with the average for the United States, which is 14.8, one gains some idea of the possibilities of intensive agriculture.

On the other hand the introduction of new plants and animals has upset the equilibrium maintained by nature. At present the attacks by insects such as the boll weevil and corn-borer, are causing grave concern. De Long estimates that the loss to agriculture from the corn-borer alone is $2,000,000,000 annually. He further points out the disastrous effects of insect parasites on cattle and poultry; he shows their effects on meat-packing, baking, canning, fruit-growing, and importation of foodstuffs. While it is possible to make the land yield greater and more diversified crops, much expense and energy must be spent in introducing new plants, intensive agricultural methods, and combating the ravages of parasites. The low price of farm products does not justify the farmers in many sections in the expenditure of large sums of money to overcome these difficulties.

(3) Although aquiculture really began to develop when the United States Fish Commission was created in 1871, it has made little progress. As to the available acreage, there is hardly any limit; for almost three-fourths of the earth's surface is covered with water. Perhaps Professor R. C. Coker best states the present situation when he says:

"The far greater areas that are water, like the lesser areas that are land, had first to go through a period of exploitation, but, unlike the latter, they have scarcely passed beyond that crude stage. There has been some application of manual labor and intelligence to increase of production through governmental agencies, and, in some instances, through personal enterprise (oyster farming is an apt example); but it can certainly be said that there exists now no practice of water-

tillage comparable in any degree to that of recent soil-tillage, and, correspondingly, there is no worthy science of aquiculture.'' [46]

(4) It may be possible to convert inorganic elements into foodstuffs through chemical syntheses, but at present there is not sufficient evidence to warrant any hoped-for increase in the food supply of the world. It is assumed that the chemist can now produce vitamins, and not only ''make the scores of fats and oils that are found ready made in plants and animals, but he can make hundreds of others that nature never thought of.'' [47] Ross, in his characteristic way, comments as follows:

''For mankind to multiply carelessly, counting on the early arrival of the synthetic production of foods on a grand scale, would be a pure gamble in human lives.'' [48]

(5) When experts and governmental authorities have, by stupendous efforts and unreckoned costs, done all in their power to push food possibilities to their limit, even then, there will be want. In Egypt or elsewhere, there will be the *fellah*, who ''would rather carry dirt in a basket than in a wheelbarrow, because his grandfather a thousand times removed did it that way.'' [49] Although in India some 25 million cattle continue to devour the fat of the land, their sacredness to the Hindu will keep them intact. The Ao Noga will shun bear meat lest he acquire the mental traits of the bear and thus become incapable of retaining but one idea at a time. In Asia there will be milk, but the Asiatic's antipathy will continue to deprive him of the benefits of dairy products. On the other hand, in other parts of the world, there will be a dependence on meat for the chief article of food, even though

[46] ''Aquiculture and the Future of the Waters,'' *Scientific Monthly*, Vol. 25, September, 1927, p. 256.

[47] Slosson, E. E., ''Food From Shale,'' *Scientific Monthly*, Vol. 21, 1925, pp. 106–07.

[48] ''Standing Room Only?'' Century, 1927, p. 114.

[49] Dublin, L. I. (Editor), ''Population Problems in the United States and Canada,'' Houghton, 1926, p. 83.

livestock consume all the products of unimproved land and three-fourths of that of improved land.

It may be asked: How long will such attitudes and prejudices remain? Food prejudices have always been a part of the *mores* of a group, and there is a persistency in psychic activity that defies prediction. Such attitudes, deeply rooted in the cultural pattern of the group, reënforced by fear of invoking the wrath of the gods, and kept in force by group opinion are too deeply embedded in the psychic life of the group to be easily unseated. As a result a food crisis often exists, not because there is a scarcity of food, but because there is a disinclination on the part of the inhabitants to eat what is available.

APPENDIX

CHAPTER I

THE ORIGIN OF MAN

Questions, Exercises, and Problems for Investigation

1. What explanation do you offer for man's interest in the formation of the earth and his own creation?
2. Compare and contrast the chief theories of man's origin, showing to what groups each is most acceptable.
3. Make a list of the likenesses possessed in common by man and animals; and also a list of the differences.
4. Locate the supposed birthplace or places of primal man and give the evidences advanced by each group of claimants.
5. By what methods is the age of prehistoric man estimated?
6. Classify and locate in point of time the various prehistoric types of man.
7. Justify or refute the statement: A collection of miscellaneous bones, such as those purported to belong to prehistoric man is of little value in establishing the evolution of man.
8. Read Osborn, H. F. "Where Did Man Originate?" *Asia,* Vol. XXIV, p. 427 ff, also Gregory, W. K., "Did Man Originate in Central Asia?" *The Scientific Monthly,* May, 1927, and summarize evidences as to the birthplace of man.
9. Make an extensive collection of theories of preliterate peoples in regard to the origin of the earth and the creation of man. Analyze and classify these.
10. Compare the views held by the Hebrews of the formation of the earth and the creation of man with those held by the early Babylonians, Assyrians, and Egyptians.

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CHAPTER II

THE FORMATION OF RACES

Questions, Exercises, and Problems for Investigation

1. Discuss the difficulties attending a solution of the early evolution of racial characters.

2. Discuss the stages recognized in the formation of races.

3. Indicate the part environment has evidently played in racial differences.

4. To what extent are racial differences due to racial mixtures?

5. From the viewpoint of gland-functioning, explain racial differences.

6. Give the chief characteristics of the eight racial types proposed by Dixon.

7. On an outline map of the world show where each originated and spread.

8. Show how plants and animals adapt themselves to climatic conditions. (Compare Townsend, C. W., "Deserts and Semi-Deserts," *The Scientific Monthly,* Oct., 1927, pp. 306–313.

9. Show wherein Sorokin differs from the various environmentalists. (See Sorokin, P., "Contemporary Sociological Theories," pp. 129–137.)

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CHAPTER III

THE CLASSIFICATION OF RACES

Questions, Exercises, and Problems for Investigation

1. Show why the classification of mankind into races is difficult.

2. Name the external criteria for judging races, and show wherein each is superficial.

3. Show how the cephalic, altitudinal, nasal, and stature indices are applied in distinguishing races.

4. Trace briefly the efforts to classify the different races.

5. Compare and contrast Thomson's classification of races with that of Giddings.

6. On what main points does Dixon classify races?

7. Locate on an outline map the groups into which the present-day population of Europe falls; characterize each.

8. On an outline map of the world indicate where the principal racial groups dwell.

9. Make a study of the overlapping of racial and national boundaries; of racial and linguistic areas.

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CHAPTER IV

HEREDITY AND EUGENICS

Questions, Exercises, and Problems for Investigation

1. Show why heredity and eugenics are important studies for students of population problems.

2. Point out the contributions to the theory of heredity and eugenics made by (a) Linnæus, (b) Buffon, (c) Erasmus Darwin, and (d) Herbert Spencer.

3. Contrast the theories of Lamarck and Weismann.

4. In what respects did Charles Darwin and De Vries differ in their ideas of evolution?

5. State the theories of Mendel and Galton, and show the importance of each from the eugenic point of view.

6. Show why it is difficult to apply the theories of heredity to human beings.

7. What evidence have we of the inheritance of physical characteristics?

8. What difficulties are encountered in maintaining the inheritance of mental characteristics?

9. Trace briefly the development of the modern eugenic movement.

10. Make an abstract of Cooley, C. H., "Heredity or Environment," *Journal of Applied Sociology,* Vol. X, No. 4.

11. What light does the study by Visher, S. S., "A Study of the Type of the Place of Birth and of the Occupation of Fathers of Subjects of Sketches in 'Who's Who in America,'" *American Journal of Sociology,* Vol. XXX, No. 5, March, 1925, pp. 551–557, throw upon the timeworn dispute regarding the importance of heredity and environment?

12. Discuss briefly the points advanced by Woods in "Heredity and Opportunity," *American Journal of Sociology,* Vol. XXVI, pp. 1–21.

13. From the eugenic point of view make a study of the types which are migrating from the rural to the urban districts and *vice versa,* indicating the problems resulting. (See especially White, R. C., "The City-Drift of Population in Relation to Social Efficiency," *The Journal of Social Forces,* Nov., 1923; and Zimmerman, C. C., "The Migration to Towns and Cities," *The American Journal of Sociology,* Nov., 1926; July, 1927; Sept., 1927.)

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CHAPTER V

INFERIORITY AND SUPERIORITY

Questions, Exercises, and Problems for Investigation

1. Define backwardness and show to what extent isolation is responsible for this condition.
2. Show wherein climate may or may not be responsible for backwardness.
3. Illustrate by example the part a lack of natural resources plays in backwardness.
4. Account for the fact that much is written and said concerning the inferiority and superiority of races.
5. Show what part physical appearances play in judging racial ability.
6. Cite instances showing that standards of culture are inadequate as a means of judging inferiority and superiority.
7. Why are economic conditions an insufficient criterion for judging racial worth?
8. What is the relationship between government and racial ability?
9. Account for the great stress that is placed on mental measurements as a means of judging racial ability.
10. Discuss the various trends in judging mental abilities.
11. What are the chief objections to judging racial superiority or inferiority by mental tests?
12. Analyze (a) Dearborn Form Board, (b) National Intelligence Test, (c) Whipple Cancellation Test, (d) Army Beta and Alpha Test, and show to what extent each measures motor skill, emotional reactions, and the ability to reason abstractly.
13. Read the symposium on intelligence in *The Journal of Educational Psychology,* Vol. XII, pp. 123–147; 195–216, and show what the various men consider intelligence to be.
14. Under what condition can you say that the Negro is or is not an inferior? (Compare Reinhardt, J. M., "The Negro: Is He a Biological Inferior?" *American Journal of Sociology,* Vol. XXXIII. Sept., 1927; and Miller, H. A., "Races, Nations and Classes," Chap. XII.

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CHAPTER VI

AMALGAMATION OF RACES

Questions, Exercises, and Problems for Investigation

1. What is amalgamation?
2. Distinguish between interracial marriage and miscegenation.
3. What are the reasons for saying there are no pure races?
4. From the viewpoint of biology, evaluate the chief reasons that have been advanced against amalgamation; for amalgamation.
5. Discuss the social objections to amalgamation, showing what elements determine the variations.
6. How does the social position of the mulatto differ from that of either parental group.
7. Explain the effort of the mulatto to form his own social organizations.
8. Compare the social advantages and disadvantages of the mulatto with those of the Eurasian.
9. Point out the effects of amalgamation upon the entire population of the United States as seen by the biologist; ethnologist; sociologist.
10. Take a group of hybrids, and from the biological and psychological points of view compare this group with both parental groups.

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CHAPTER VII

THE DYSGENIC EFFECTS OF WAR AND RELIGION ON POPULATION

Questions, Exercises, and Problems for Investigation

1. Show the quantitative effects of war on population.
2. By example show the effects of war on marriage and birth rates.
3. By means of comparisons, give some idea of the cost of past wars.
4. Discuss the alleged advantages accruing from war.

5. From the standpoint of quality, discuss the effects of war.

6. Discuss the dysgenic effects of unorganized charity, celibacy, and dogmatism upon population.

7. Taking your own section of the country, show how some war has affected it economically and qualitatively.

8. Show how prejudice engendered by the Civil War and Reconstruction, has affected the South politically, educationally, and religiously.

9. Upon an outline map locate the "tension spots" of the modern world; then show why they are probable sources of future wars. (See Bakeless, John, "The Origin of the Next War." The Viking Press, 1926; also Nitti, F., "The Wreck of Europe," Bobbs-Merrill, 1922.)

10. According to the estimate of De Lapauge, there are at the present time at least 20,000,000 people who are members of celibate religious orders, two-thirds of whom are in Asia. What are the effects on population?

11. Europe has a monogamous form of marriage and a surplus of 17.5 million females. What will be the probable effects on population?

12. Parallel the effects of war and plague. (See Thompson, J. W., "The Aftermath of the Black Death and the Aftermath of the Great War." *American Journal of Sociology,* Vol. XXVI, May, 1925, pp. 565–572.)

13. Briefly discuss the various theories of war as set forth by Sorokin ("Contemporary Sociological Theories," Chap. VI).

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CHAPTER VIII

CULTURE

Questions, Exercises, and Problems for Investigation

1. Discuss the different uses of the concept culture.
2. Trace briefly the efforts to establish culture stages.
3. Show why it is often difficult to assign a racial group to a specific stage of culture.
4. Advance proof for the contention that little culture is spread by invention; that much is spread by this method.
5. Show how elements of culture spread through borrowing.
6. Why is there doubt that culture really spreads by convergent development?
7. Using specific groups indicate the part environment has evidently played in their culture development. Cite other instances showing that environment is not all determinative.
8. What seems to be the consensus of opinion as to the importance of race as a factor in the assimilation of culture?
9. Taking Greece, Rome, Germany, and the United States, show to what extent their alleged position has been due to the accumulation of culture.
10. Report on the inventions of preliterate peoples. (For suggestions see Case, C. M., "Outlines of Introductory Sociology," Chap. XIV; Mach, E., "On the Part Played by Accident in Invention and Discovery." *Monist,* Vol. VI, pp. 161–175.

11. Make a comparative study of Hart, H., and Pantzer, A., "Have Subhuman Animals Culture?" *American Journal of Sociology,* Vol. XXX, pp. 703–9, and Case, C. M., "Culture as a Distinctive Human Trait." *American Journal of Sociology,* Vol. XXXII, pp. 906–920.

12. From both the biological and cultural points of view, what is race?

13. Explain and give illustrations of Ogburn's cultural lag. (See his "Social Change.")

14. Compare and criticize Folsom's ("Culture and Social Progress," p. 126) scheme of the relation of culture to human traits and the environment, and Ellwood's ("Cultural Evolution," p. 42) curve of human culture.

15. Abstract "A Million Years of Evolution in Tools," Fairchild M., and Hart, H., *Scientific Monthly,* Vol. XXVIII, January, 1929, pp. 71–79.

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CHAPTER IX

THE ORGANIZED DIFFUSION OF CULTURE

Questions, Exercises, and Problems for Investigation

1. Indicate the part religions play in the diffusion of culture.

2. Show how the endeavors of the missionary and trader assist and counteract the influence of each other.

3. Discuss the effects of colonization upon the culture of the colonizers and upon that of the natives.

4. Cite several instances of cultural diffusion through conquest and war.

5. Take some country as Poland or Ireland, and study the cultural changes resulting from the gaining of its independence.

6. Make a study of the influence Indian culture has had upon our culture.

7. Show how a fusion of a higher with a lower culture often causes a loss of interest and results in depopulation. (See Rivers, W. H. R., (Editor) "Essays on the Depopulation of Melanesia," and Smith, W. C., "The Ao Naga Tribe of Assam.")

8. Discuss some of the effects of Christianization among preliterate peoples. (See Shonle, Ruth, "The Christianizing Process Among Preliterate Peoples," *The Journal of Religion,* Vol. IV, No. 3, May, 1924, pp. 261–280, and Abel, C. W., "Conflicting Forces in Papua," *Missionary Review of the World,* Vol. XLVI, 1923, pp. 377–382.

9. Show the result of civilization upon the Eskimo. (See Diamond Jennes, *Geographic Review,* Vol. V, 1918, pp. 89–101.)

10. Read "An African Autobiography" and show the great effort required to accept a new culture, *Missionary Review of the World,* New Series, Vol. XLII, 1919, pp. 603–608; 683–686; 933–945.

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Wissler, Clark, "Man and Culture." Crowell, 1923, Chap. IX.

CHAPTER X

THE UNORGANIZED DIFFUSION OF CULTURE

Questions, Exercises, and Problems for Investigation

1. Distinguish between organized and unorganized diffusion of culture; between primary and secondary cultural contacts.

2. Show how tramps and tourists assist in the diffusion of culture. How do their methods differ?

3. Indicate something of the extent of migration and note the effects upon different sections of the United States.

4. What are the advantages and disadvantages from the viewpoint of culture of unrestricted immigration?

5. Show the effects of amalgamation upon culture, noting the varying effects produced by the amalgamation of different races.

6. Read and abstract Nylander, Towne: "The Migratory Population of the United States," *American Journal of Sociology*, Vol. XXX, pp. 129–163.

7. Read the "Introduction" and "Conclusion" of Dixon, R. B., "The Racial History of Man," and indicate the part amalgamation and the diffusion of cultures have played in civilization.

8. Show how the cultures of the North and South have come to differ, due to the presence of the immigrant in the North and the Negro in the South.

9. Take specific cities or sections of the country and show how these are being influenced by immigrant cultures.

10. Discuss the influence of migration, immigration, and amalgamation upon the Pacific Coast.

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CHAPTER XI

PRE-MALTHUSIAN THEORIES OF POPULATION

Questions, Exercises, and Problems for Investigation

1. Indicate how the economic, political, and religious conditions of preliterate peoples influenced their population theories.

2. Contrast the population theories of the Greeks and Romans.

3. Show the part the religious doctrines have played in influencing the attitudes of the different groups toward population increase.

4. State the attitude of the Mercantilists toward population increase, and discuss the different methods used to increase it.

5. Contrast the population theories of the Cameralists and Physiocrats and show how these differed from that of the Mercantilists.

6. Make a more extended study of the different religious doctrines regarding the increase of population.

7. Indicate the influence these (6) doctrines are having today.

8. Make a collection of current opinions regarding population increase and classify these according to the doctrines of the Mercantilists, Cameralists, and Physiocrats.

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CHAPTER XII

MALTHUS

Questions, Exercises, and Problems for Investigation

1. What were the general conditions in England at the time of Malthus?

2. Discuss the principles in Malthus' theory.
3. In what respect does Malthus express a revolt against the current doctrines of his day?
4. Criticize the theory of Malthus.
5. Show wherein Malthus did or did not make a contribution.
6. Read and write a digest of Malthus' "Essay on Population."
7. Explain why Malthus was "the best abused man of his day."
8. "One can read the *Essay,*" writes Wolfe, "from cover to cover without encountering a passage which indicates that Malthus ever thought that women have anything to do with population." How does this oversight invalidate Malthus' theory?
9. Evaluate Woolston's criticism of Malthus' doctrine. (Woolston. H. B., "The Dynamics of Population," *The Journal of Social Forces,* Vol. II, Jan., 1924, pp. 169–177.)

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Wright, Harold, "Population," Harcourt, 1923.

CHAPTER XIII

POST-MALTHUSIAN THEORIES OF POPULATION

Questions, Exercises, and Problems for Investigation

1. Explain Thompson's theory of population.
2. What experiences colored Rae's population theory?
3. According to Doubleday, what influence does food have on fecundity?
4. On the basis of Dumont's theory, explain the birth rates in India and the United States.
5. Criticize Spencer's theory of population.
6. According to Nitti, what connection is there between economic conditions and an increase of population?
7. Analyze and evaluate Patten's restatement of the law of population.
8. Contrast Pell's and Doubleday's theories of population.
9. Show wherein Cox's analogy between individual and population growth is fallacious.
10. Explain and criticize Pearl's population theory.
11. What evidence have we to show that temperature affects gland secretions which in turn influence population growth?
12. Trace briefly the changing concepts of population. (Compare Duncan, H. G., "The Changing Concepts of Population," *Publications of the American Sociological Society,* Vol. XXI, 1927, pp. 113–127.

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CHAPTER XIV

POPULATION OF THE EARTH

Questions, Exercises, and Problems for Investigation

1. From the estimates given, indicate the relative strength of the different racial groups in the world.

2. How do you harmonize the alleged overpopulation of Asia with the fact that her continental density is less than half that of Europe?

3. How do you account for the fact that six nations control over three-fourths of the population of the world?

4. What are the causative factors for the following densities: England, 669.2; Norway, 19.1; Japan, 375; Arabia, 1; Argentine, 6.8?

5. Indicate the reasons for the population increase in Europe during the nineteenth century.

6. Compare the percentage increase of Negroes and whites in the United States; for different sections.

7. How did the World War affect our immigrant increase?

8. On a map of the United States locate the different racial groups.

9. By means of a chart represent their relative strength.

10. On the basis of economic and geographic factors, explain the density of Rhode Island, Iowa, and Nevada.

11. What do our marital, illiterate, wealth, and religious distributions indicate?

12. Report on: "The Laws of Growth of a Population," Knibbs, G. H., *Journal of American Statistical Association,* Vol. 22, March 1927, especially pp. 49–59.

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CHAPTER XV

FECUNDITY AND FERTILITY

Questions, Exercises, and Problems for Investigation

1. Distinguish between fecundity and fertility.
2. Give some idea of the fecund power of plants, lower and higher animals; account for this difference.
3. What evidence have we to show that there has been an increase in the human fecund cycle?
4. What conditions apparently influence the fecund life of human beings?

5. Show why human fecundity and fertility are much greater than is necessary to maintain numerically the present population.

6. Do we have any modern evidence which seems to point to a human pairing season? (Compare White, R. C., "The Human Pairing Season," *American Journal of Sociology,* Vol. XXXII, pp. 800–805.

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CHAPTER XVI

THE CONTROL OF POPULATION BY POSITIVE METHODS

Questions, Exercises, and Problems for Investigation

1. Discuss witchcraft and killing the old as means of controlling population.

2. Trace the changing attitude toward abortion, and show its importance as a means of population control.

3. Discuss infanticide, showing its prevalence among different peoples at different times.

4. Compare preliterate and modern warfare as means of population control.

5. Indicate something of the increasing importance of disease as a factor in control with the advance of civilization.

6. Compare the infant mortality rates of preliterate groups and those of our present backward modern nations with those of our highly civilized groups and account for the difference in rates.

7. Show the importance of famines as agencies of population control.

8. Make a study of deaths by automobiles for the past 20 years, and show whether or not there has been a percentage increase in deaths with the ownership of cars and the increase of population.

9. Make a similar study for industry and compare the results.

10. Take five old-age diseases and five children's diseases, trace their percentage increase over a period of 20 years, and show what is being done to counteract these.

11. Make a careful study of the losses of population due to plagues; due to famines.

12. Evaluate the arguments advanced by the authors cited relative to an increased longevity. Hart, H., "The Urban Expectation of Life in 2000 A.D." *The American Journal of Sociology—Proceedings,* Vol. XX, 1926, pp. 118–122; and Popenoe, P., "Back to Methuselah?" *The Scientific Monthly,* Dec., 1927, pp. 535–539.

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CHAPTER XVII

THE CONTROL OF POPULATION BY PREVENTIVE METHODS

Questions, Exercises, and Problems for Investigation

1. Show the probable effects of pre-puberty coition on fecundity.
2. Is there any likelihood that population increase was extensively influenced by initiation ceremonies?
3. How would you account for the fact that among many tribes it was the custom to delay marriage, while among some more densely populated tribes early marriage was the custom?
4. What evidence have we that the prolonged period of lactation acted as a control of population increase?
5. What part does tabooed coition play in population control?
6. Trace the development of the idea of celibacy.
7. Indicate the breadth and efficiency of the prevention of fertilization among preliterate peoples.
8. Take some preliterate group and study it with a view of ascertaining what preventive methods are used in controlling its size.
9. Study the effects of child marriage in India upon fecundity.

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CHAPTER XVIII

THE MODERN BIRTH CONTROL MOVEMENT

QUESTIONS, EXERCISES, AND PROBLEMS FOR INVESTIGATION

1. Trace the history of the modern birth control movement.
2. Give some indication of the declining birth rate in Europe; the United States.
3. Show how the birth rate varies with wealth conditions.
4. What effect does occupation have upon fertility?
5. How is education apparently affecting fertility? Fecundity?
6. Compare the birth rates of urban and rural districts.
7. How would you explain that birth rates vary with religions?
8. Explain why our immigrants have a heavier birth rate than native white Americans; Negroes.
9. Why are survival rates important? Of what conditions are they indicative?
10. How does the dependent family contribute to our differential birth rate? (See Halverson, H. J., "The Prolificacy of Dependent Families," *American Journal of Sociology,* Vol. XXIX, pp. 338–344.)
11. Prepare a paper on the differential birth rate in the United States.

CHAPTER XIX

THE MODERN BIRTH CONTROL MOVEMENT (Continued)

QUESTIONS, EXERCISES, AND PROBLEMS FOR INVESTIGATION

1. Show the importance of the economic, the social, and the physical causes for the declining birth rate.

2. Evaluate the religious arguments against birth control.

3. Why is so much political importance attached to the modern birth control movement?

4. Why are manufacturers so interested in birth control?

5. What evidence have we that birth control causes more single child families?

6. Justify or refute the statement that the only child is an inferior.

7. Which of our industrial and professional groups are apparently forced to practice birth control today?

8. Show why the birth control movement in the United States is a dysgenic process.

9. Indicate the relative influence on birth control.

10. Make a collection of opinions of physicians, teachers, political, industrial, and religious leaders concerning the use of contraceptives.

11. Make a list of all the objections that have been advanced against contraceptive methods; evaluate these.

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CHAPTER XX

POPULATION AND THE FOOD SUPPLY

Questions, Exercises, and Problems for Investigation

1. Compare the limitations of the food supply of plants and animals with those of the human group.
2. Explain why the population of a nation apparently increases with its economic development.
3. Compare the food conditions of China with those of India and Japan.
4. What evidence do we have that Europe has not reached her maximum population density?
5. Compare the percentage areas of land under cultivation in the Americas with those of Africa and Australia, and note any conditions especially favorable to agriculture.
6. What is meant by the optimum population limit?
7. Give some idea of the yearly increase and the potential limit of population.
8. What are considered to be the maximum food limits in the United States?
9. What part do natural resources play in food production?
10. Show what countries have the greatest possibilities for increasing crop acreage, and cite their advantages and disadvantages.

11. From the standpoint of efficiency in food production, compare the different countries.

12. Give some estimate of the possible productivity of our land, taking into consideration other factors that are likely to enter in.

13. What are the apparent possibilities of an extensive aquiculture? Of a production of synthetic foods?

14. Show wherein food supplies may be rendered inadequate where all economic and agriculture possibilities have been utilized.

15. Make a list and discuss the possible food supply that would be available by the elimination of food tabooes. (Compare Diamond, H. M., "The Unfit Survive," *The Scientific Monthly,* August, 1927.)

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